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<p>This study was conducted to determine the Army Medical Corps' attitudes, knowledge, and extent of participation in the Army Organ Transplantation Program. Interviews with personnel assigned to organ recovery agencies and a survey of Army Medical Corps officers were used to measure knowledge and attitudes about the Army Organ Transplantation Program. Results showed Army Medical Corps officers' attitudes reflected the values of the society. They believed in freedom of choice on the part of the organ donor and did not want a public policy of presumed consent. The physicians samples indicated a need for education both in clinical knowledge and awareness of support agencies to assist in the organ procurement process.</p>			
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THE END-STAGE RENAL DISEASE PROGRAM:
BASIS FOR THE ARMY ORGAN TRANSPLANT PROGRAM

A Graduate Research Project
Submitted to the Faculty of Baylor University
in Partial Fulfillment of the Requirements
for the Degree of
Master of Health Administration



By

Captain Katharine D. Miller, MS

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CHAPTER I

INTRODUCTION

General Information

The shortage of organs for transplantation is not a new problem. It has been and will continue to be a problem as long as various end-stage diseases remain incurable. The problem has received renewed attention, however, largely because of recent advances in transplantation immunology. The discovery in 1980 of the drug Cyclosporin, which combats organ rejection by the body, has resulted in dramatic improvement in the survival rates of patients receiving transplants. Thirty years ago the primary moral problems accompanying organ transplantation concerned the determination of whether to subject patients to experimental, last-resort procedures. But today's technological progress in this arena has given birth to a wide range of ethical questions, such as "Who shall live?" and "Should donor consent be presumed unless indicated otherwise?"

Continued improvement in transplantation technology has created economic as well as ethical concerns. The gap between the demand for organs and the number actually available for use has widened, raising questions of equitable distribution and the high cost of programs associated with organ transplantation, specifically the End-Stage Renal Disease Program. There are also political issues involving the lack of adequate government regulation and control over techniques, generated by policies and programs which were adequate for a technology in its

infancy but unable to meet the challenge proposed by a technology on the verge of widespread success. These technological, ethical, social, economic, political, and legal problems are further exacerbated by their occurrence in a health care system which. To further compound the problem, the health care industry is driven by an ever-expanding technology base and a seemingly insatiable consumer and provider demand to use medical care.

In the public sector, support for the End-Stage Renal Disease Program is provided by a complex network of organizations, civic groups, and both profit and not-for-profit procurement agencies. Within the Department of Health and Human Services, the Health Care Financing Administration establishes policy and exercises administrative control over the funding of the program. In the federal sector, organ transplantation is regulated through the Organ Transplant Program, which was established by the Department of Defense. The Army Organ Transplant Program, with which this study is primarily concerned, is outlined in Army Regulation 40-3. This service has been in operation by some name, in some organizational form, since the early 1970s.¹ The service has received official notice as an Army Medical Department (AMEDD) specialized program with a research-related association throughout the military and civilian scientific communities. It has been described as mission-oriented, implying an integral and desirable role in the AMEDD health care delivery system. In general the program is established to perform major organ (specifically kidney) transplantation for patients who have statutory entitlement to care in uniformed service medical treatment facilities and who require this service. Eligible

patients may be admitted to the Army Organ Transplant Program upon referral from a designated Army regional dialysis center or similar facility of the Navy or Air Force. When a potential donor is not eligible for care in military medical treatment facilities, participation in the transplant procedure is subject to Secretary of the Army approval. Walter Reed Army Medical Center has been designated as the Army Organ Transplant Center. The eight Army medical centers are designated by regulation as regional dialysis centers for affiliation with the Army Organ Transplant Center. The Transplant Center Director collaborates with other military, federal, and civilian medical institutions in scientific information exchange and in efficient distribution of cadaver organs and tissues.

This paper discusses the broad array of issues confronting the End-Stage Renal Disease Program. As each issue is addressed, the contrast between federal and civilian support within the program is presented. Because military medicine is physician directed, any program initiatives within the military health care delivery system must be based on the attitudes, knowledge, and willingness of the Medical Corps to participate in new and/or expanded programs; therefore, the research for this paper includes an analysis of the opinions of Army Medical Corps officers assigned to the eight major Army medical centers. Finally, recommendations for changes to the Federal Organ Transplantation Program are suggested.

Conditions Which Prompted the Study

A management project assigned during the first quarter of the Health Care Administration residency required extensive research of the Army Organ Transplantation Program. Numerous sources identified a great demand for the donation of kidneys and extra-renal organs. According to Army regulations, each medical center is to operate a renal dialysis unit and harvest kidneys for transplantation at Walter Reed Army Medical Center. Efforts made to identify the ongoing programs at all eight Army medical centers suggest a loosely controlled, independently structured program. Not all medical centers participate in the program, yet some community hospitals do. In spite of the expressed great demand for donated organs, there appears to be little emphasis on the program to harvest needed kidneys.

Literature Review

Technological Aspects of the End-Stage Renal Disease Program Renal Disease and Its Treatment

When the kidneys fail, waste products build up in the bloodstream, causing the toxic condition of uremia. Sudden onset of uremia is called acute kidney failure. In many cases of acute kidney failure, kidney function returns to normal and medical treatment to remove the waste products (dialysis) is necessary for only a short time. If kidney function does not return or is gradually lost, the condition is known as chronic renal failure. End-stage renal disease (ESRD) is the late and terminal phase of chronic renal failure, during which the kidneys continue to deteriorate until all kidney functions are lost.

ESRD is irreversible, and medical treatment, such as maintenance dialysis, is needed to sustain life.²

Two major treatment options are available for the ESRD patient: dialysis or kidney transplant. Dialysis is the usual treatment for most patients (about 73 percent in 1983)³ and can be performed in a hospital, in an independent dialysis facility, or at home. The percentage of patients who dialyze at home ranges from 60 percent in some states to less than 5 percent in others.⁴ Nationally, during 1983, about 19 percent of ESRD dialysis patients dialyzed at home.⁵ Dialysis in any setting is expensive; as of December 1983 Medicare paid on the average about \$24,000 a year to treat a dialysis patient.⁶

There are two methods of dialysis: hemodialysis and peritoneal dialysis.⁷ During hemodialysis, blood is taken from the patient's body and passed through a dialysis machine, which filters out body waste before returning the blood to the patient. During peritoneal dialysis, the blood is filtered within the patient's abdominal cavity without leaving the body. There are three variations of peritoneal dialysis: continuous ambulatory (CAPD), intermittent (IPD), and continuous cycling (CCPD).

Physicians who treat patients with ESRD, usually internists or nephrologists, provide services to dialysis patients on an inpatient and outpatient basis. Inpatient care is provided after the ESRD beneficiary has been admitted to the hospital, while outpatient care can be provided in a hospital or in an independent dialysis facility. In either setting the beneficiary goes to the hospital or dialysis facility to get dialysis treatments and is not admitted as a patient.

The other way of treating ESRD, kidney transplant, is generally a viable option for any patient who is fit for surgery. In the 1960s advances in medical technology allowed physicians to artificially maintain vital biological functions in dead patients. Respirators and heart-lung machines permitted many organs to be salvaged for transplantations. These technological advances were partially responsible for the shift in the legal definition of death toward the so-called "brain death" standard, which was advanced largely in response to the urgings of the transplant community. Brain death statutes (Appendix 1) permitted organs to be harvested from those who had suffered an irreversible loss of brain function if there was no objection from next-of-kin. Aided by new immunosuppressive drugs such as Cyclosporin, better tissue matching capabilities, and improved surgical techniques, kidney transplantation has made great strides. Today many transplant surgeons have attained success rates of over 80 percent survival for at least five years among those who have received kidneys from live related donors.⁸ The survival rate for recipients of cadaver kidneys five years after surgery is 60 percent.⁹ The feasibility of a transplant also depends upon the availability of a suitable donated organ. Because younger patients do not tolerate the restrictions of dialysis as well as older patients, they are most likely to receive a transplant.

The drug Cyclosporin has been accepted for use in military medical treatment facilities. Military medicine recognizes that graft survival is doubled and complicating bacteria and viral infections are halved with its use.¹⁰ These benefits have significantly reduced the practice of taking kidneys from live donors. Medical services for

donors under the Army Organ Transplant Program are comprehensive. Any disability or mortality resulting from a kidney donation made by an active duty member of the Army in accordance with the prescribing regulation is considered "in the line of duty."¹¹

Moral and Ethical Aspects of the
End-Stage Renal Disease Program

Potential donors and families of diseased patients dealing with the issue of organ donation at one time or another question the moral and ethical aspects of the decision for transplantation. Such questions are often discussed at length with religious leaders. These community leaders were among the first nonmedical people to examine closely the moral and ethical implications of the procedure.

The Catholic Church has said that organ transplantation does not violate Church doctrine and is consistent with the practice of charity and giving.¹² The Catholic bishops have said, "Vital organs, that is, organs necessary to insure life, may not be removed until death has taken place. The determination of the time of death must be made in accordance with responsible and commonly accepted scientific criteria."¹³

Generally Protestant denominations are in agreement with this concept. The Presbyterian General Assembly on organ donation and body donation, which is advisory in intent, "recognize(d) the life-giving benefits of organ and tissue donation and . . . encourage(d) all Christians to become organ and tissue donors as a part of their ministry to others in the name of Christ who gave his life that we might have life in its fullness,"¹⁴ the philosophy being that through such donations

Christians serve their fellow human beings long after they are gone from this world and have no more need for these earthly bodies. Billy Graham is quoted in the Houston Post as finding nothing in the Bible that prohibits organ donation or indicating any moral wrongdoing in participating in organ donation.¹⁴

Under Jewish law, the removal of organs and their transplantation is permitted because the saving of human life is a primary goal of the law.¹⁶ The removal of an organ after death in order to save a human life does not violate the sanctity of the deceased but rather is a blessing.

A major concern of all community leaders is that the consent to donate an organ, whether by the donor or his next-of-kin, be truly informed and voluntary. Specifically, the nearest relative must understand the intentions of the donor and have no objection to granting these wishes at the time of death of the donor.

The military echoes this concern that the nature of the risk and the effect upon the donor must be clearly stated in order that the donor and his family may have enough knowledge to make a meaningful decision. However, the Army specifies that there is no obligation to an active duty service member executing a declaration of intent to donate all or part of his body to general or specific donees after death under the Uniform Anatomical Gift Act. Active duty members may serve as kidney donors in the Army Organ Transplant Program only in the absence of other properly matched volunteer donors; they must understand that qualifications for continued service are dependent on a medical evaluation performed after donation of the kidney.¹⁷

Political Aspects of the
End-Stage Renal Disease Program

End-Stage Renal Disease Program Legislative History

The Social Security Act of 1935 established a federal government social insurance program that included, in time, the substantive area of health. Prior to 1935 the federal government had limited its support to narrowly targeted medical care for veterans, merchant seamen, soldiers, sailors, and in general for activities which were embraced under the field of quarantine or communicable disease. With the Social Security Act, the federal government, while retaining a focus on specialized problems, entered into a broader area of health care by providing in Title V and VI for grants to support maternal and child health programs and to support public health departments. During World War II there was also an emergency program for mothers and children. After the war, with the growing economic strength of the country and a boundless faith in science, Congress introduced a set of federal programs for the purpose of developing health resources.

During the mid-1960s the federal government began to move from the idea of simply developing resources and focused instead on specialized problems in other broad areas. One initiative provided financial assistance to consumers. Effective July 1, 1966, the Medicare program was established to assist in paying health care costs for eligible persons age sixty-five and older.¹⁸ The poor received financial aid through the Medicaid program. A social concern had evolved which declared that it was unconscionable for people to be deprived of medical and health care because they had inadequate means

or because they happened to reside in the wrong geographic area. The agenda for the 1960s was one of equity, the achievement of which was a basic task of government. This approach was expensive, but the country was experiencing such economic growth and optimism that cost was a secondary consideration.

In the early 1960s medical technology and treatment for renal disease advanced significantly, but treatment costs were high and treatment availability was limited. The decision to admit a patient to a dialysis program was based on economic and social, as well as medical, factors. Many communities and hospitals developed explicit patient selection criteria because of the limited number of renal physicians, transplant surgeons, dialysis machines, and donated organs. The selection process, in effect, became a life and death decision, with the young and potentially employable usually selected for dialysis or transplant.

The Social Security health care benefits were further expanded with the Amendments of 1972 (Public Law 92-603) enacted in October 1972.¹⁹ Section 299 (1) of the law extended Medicare coverage to persons suffering from kidney (renal) failure who either were currently or fully insured under the Social Security Act or were dependents of persons currently or fully insured. Before the Amendments were passed, only persons age sixty-five and older who had Medicare coverage were eligible for reimbursement for dialysis services. Medicare coverage became effective in July 1973 and covered over 90 percent of people suffering from ESRD.²⁰

Dr. George A. Porter, Chairman of the Department of Medicine at

Oregon Health Sciences University in Portland, indicated at a National Kidney Foundation conference that studies demonstrate that many demographics have equalized since the 1972 law expanded federal subsidies of end-stage renal disease treatment, such as the ratio of men to women receiving hemodialysis--only a third previously were women, and six years later it was about equal. The ratio of whites to blacks, once nine to one, became two to one.²¹ Thus the ESRD program virtually eliminated previous inequities in access to kidney treatment.

The 1978 ESRD Program Amendments (Public Law 95-292) were enacted in June 1978 to promote efficiency and economy in the delivery of renal services by encouraging self-dialysis (home and facility) and kidney transplants.²² In 1973 about 40 percent of all ESRD patients were dialyzed at home; however, by 1978 the number had decreased to about 10 percent.²³ Because it is generally less expensive, the Congress wanted to encourage home dialysis. Accordingly, the Amendments changed eligibility rules by authorizing elimination of the three-month waiting period for home patients, established a prospective payment system for home dialysis based on paying facilities a predetermined fixed rate rather than on the actual cost of providing the service, established criteria for in-facility self-care, and increased Medicare coverage for home dialysis supplies and equipment.

In 1981 the Omnibus Budget Reconciliation Act (Public Law 97-35) required Health and Human Services to develop a prospective payment system for outpatient dialysis services that would further promote home dialysis.²⁴ The system had to pay for home and facility dialysis under either a composite rate (a single rate for both home and facility

patients) or another method that would effectively promote home dialysis.

Finally, the National Organ Transplant Act (Public Law 98-507) ("the Act"), enacted in 1984, established a national program to procure viable organs for transplant.²⁵ The Act provided for federal grants to regional organ procurement organizations to increase the availability of organs on a local level and the establishment of a National Organ Procurement and Transplantation Network to match transplant donors with patients. Under the Act, the Scientific Registry monitors recipients of transplanted organs for their clinical and scientific progress. Utilizing information gathered by the Scientific Registry, the Secretary of Health and Human Services publishes an annual report on the status of organ procurement and transplantation.

The Act also established a task force to study and report to Congress and the Secretary on a number of significant issues. This task force is to prepare a report within twelve months of the Act's enactment, analyzing problems which currently deter efforts to procure viable organs for transplant. Second, the task force must prepare an assessment within seven months of the Act's enactment which discusses immunosuppressive medications and evaluates public and private insurance coverage for these medications. Finally, it must monitor the development of regulations to make grants to the Organ Procurement Organization.

Medical Group Opposition to Government Involvement

The House of Delegates of the American Medical Association (AMA) has testified that

the AMA is of the view that the beneficial intent of the National Organ Transplant Act can best be carried out by strengthening the many successful voluntary private activities currently ongoing, at both the local and regional level, without the creation of a structure fashioned by the federal government.²⁶

The American Hospital Association (AHA) has said it will support efforts to increase voluntary donation of "nonrenewable, transplantable organs."²⁷ The American Council on Transplantation, a private sector organization, has been organized to undertake such efforts. The Council is an outgrowth of recommendations from a workshop convened by the Surgeon General of the Public Health Service. The AHA has also gone on record against the sale of transplantable organs. In opposing the sale by donors or intermediaries of organs for profit, the Association noted that "recovery of related costs would be considered appropriate, however."²⁸

The AMA is concerned with and is specifically opposed to provisions in the bill before Congress that would allow the Health and Human Services Secretary to set criteria for patient selection, physician qualifications, and facilities for the use of any technology or service.²⁹

Economic Aspects of the

End-Stage Renal Disease Program

The Rising Cost of Health Care

The cost of treating end-stage renal disease is prompting a "re-thinking" of the way resources are allocated . . . dialysis and transplant costs to benefit a relatively low number of people are a prime target of federal cost-containment effort.³⁰

Despite the slowdown in inflation, hospital costs continue to rise, creating an economic crisis that threatens to undermine medical

care for many Americans. What is causing this runaway inflation in the health care system? This problem is enormously complex. No one factor can be singled out as the sole culprit. Hospital labor costs accelerate as more technicians are hired to run increasingly sophisticated machines. The threat of malpractice suits has pushed up the expenses of doctors, who increasingly practice a very costly form of defensive medicine. To further complicate matters, the population is aging. By 1990, 31.8 million Americans will be over sixty-five--an increase of almost 12 million over 1970. Since older persons tend to be sicker longer and more often than younger individuals, they will make increasingly greater demands on the medical system.

Further contributions to the rise in the cost of medical care include the progress of medical science. Roughly one-third of the increase is attributed to medical technology. The trend toward physician specialization leads to the acquiring of new clinical skills. The one-sided nature of the medical market place is another contributing factor to increasing costs for medical care. Even with the implementation of prospective pricing, many physicians and hospitals determine price and choice of services for each patient while the government and private insurance substantially finance health care. Finally, the "Great Society" expansion in the 1960s of the Social Security Act of 1935, which established the Medicare health care program for the nation's elderly and disabled, created a seemingly insatiable demand for more and better health services, further driving up the cost of health care. Each of these factors has coincidentally affected the ESRD program.

Runaway health care costs and the expansion of Medicare through the creation of new programs such as the ESRD program are sabotaging the Medicare program, which is costing far more than the government anticipated. Since 1971, Medicare hospital costs have risen four times faster than the consumer price index (see Figure 1). The \$8.8 billion price tag projected for 1990 was exceeded in 1972.³¹ Medicare's annual tab is now \$50 billion and is expected to top \$100 billion by 1990. A deficit of \$200 billion is projected for 1994 (see Figure 2).³²

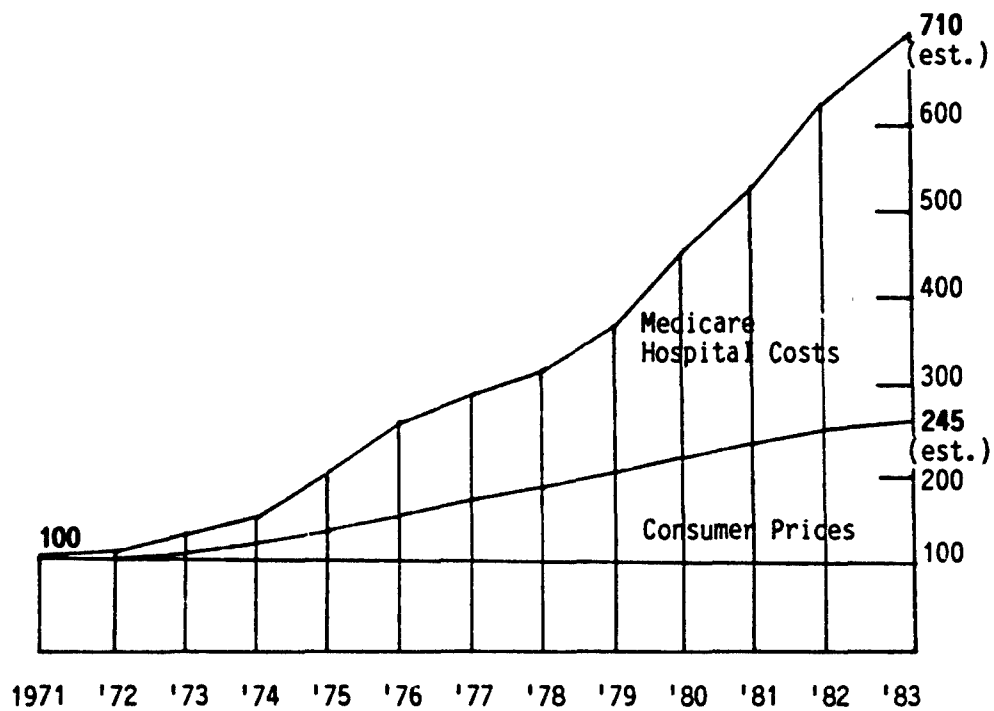
So far the government has responded to the Medicare crisis by reducing some benefits, raising the cost of the program to beneficiaries, and initiating the prospective pricing system. By themselves such steps aren't expected to restore Medicare to financial health, leaving lawmakers with the politically unpalatable choices of increasing taxes, further reducing benefits, or cutting back funds for hospitals and special programs. The clock keeps ticking, and the trust funds for both hospitals and physician services are in trouble. If effective action is not taken, the Congressional Budget Office warned recently, Medicare could slide into financial insolvency by the end of 1990, if not sooner.

Physician Reimbursement for Services

Provided Dialysis Patients

The Medicare funds to support the ESRD program are obtained through two separate but complementary types of health insurance. Hospital insurance (part A) covers inpatient hospital, skilled nursing facility, and home health care services and is financed primarily by

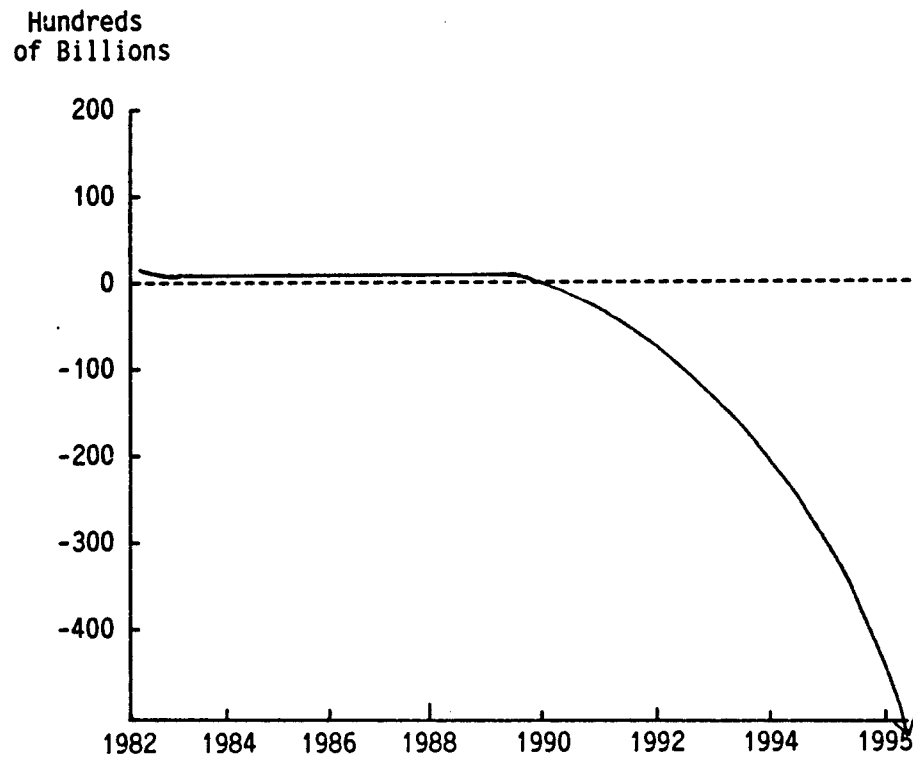
Figure 1
SOARING HOSPITAL COSTS*
1971 = 100



Thus, since 1971, medicare hospital costs have risen at a rate more than four times as fast as all consumer prices.

*Clemens P. Work and Richard L. Delouise, "Has Success Spoiled the Medicare Program?" U.S. News and World Report (10 October 1983), p. 88. Basic data: 1983 Annual Report of the Board of Trustees, U.S. Dept. of Labor.

Figure 2
MEDICARE DEFICIT*



Source: Congressional Budget Office

Government chart shows that corrective measures to
control costs are overdue.

*Elliot Earlson, "Is Our Care System Killing Us?" Modern Maturity
(April-May 1984), p. 36.

employer and employee payroll taxes. Supplementary medical insurance (part B) covers physician services, outpatient hospital services, and various other noninstitutional services and is financed primarily with federal funds and enrollee premiums. In 1983 premiums covered about 23 percent of part B costs. Under part B, Medicare reimburses the beneficiary or the provider for 80 percent of allowable charges. The remaining 20 percent (the coinsurance amount) is paid by the beneficiary after he or she incurs \$75 in covered expenses each year (the deductible amount).

Although ESRD beneficiaries represent only about 0.25 percent of total Medicare part B beneficiaries, in 1983 ESRD payments accounted for about 8.5 percent of part B costs.³³ In fiscal year 1974, the total ESRD program costs had increased to more than \$1.8 billion annually for more than 89,000 beneficiaries.³⁴ This equates to an average of about \$24,000 per year to treat a dialysis patient.

Medicare part B is administered by the Department of Health and Human Services (HHS). Within HHS, the Health Care Financing Administration (HCFA) establishes policy and exercises administrative control of Medicare part B. HCFA contracts with forty insurance companies, called carriers, to administer the part B program, including the ESRD portion. The carriers determine reasonable charges for physician services and review and pay claims on behalf of HCFA. HCFA regional offices monitor carriers' performance, including their claim payments.

Before August 1983 the Medicare program reimbursed physicians for services provided to dialysis patients under one of two methods: the initial method or the alternative reimbursement method (ARM).³⁵

Under the initial method, in effect since the ESRD program started, the method of payment varied depending on where a patient was dialyzed. For those who dialyzed in a facility, Medicare allowed each facility \$12 per dialysis session to cover physicians' supervisory care provided during dialysis. The physicians negotiated with facility officials for their fees and could be paid more or less than the \$12 per session, depending on their agreement with the facility. In addition, physicians could bill Medicare on a fee-for-service basis for their nonsupervisory outpatient care and for all inpatient care provided to facility patients. For home dialysis patients, physicians were paid on a fee-for-service basis for all their care.

Physicians who cared for ESRD patients were not satisfied with the initial method. Many believed that the initial method discriminated against renal physicians as a group because other physicians were paid for their services directly by Medicare on a fee-for-service basis. Some physicians cited difficulties in negotiating with the facilities for their fees. As a result, the ARM was implemented in July 1974. At the end of 1980 physicians reimbursed under the ARM provided about 75 percent of all dialysis services.³⁶

Under the ARM, physicians who cared for ESRD patients were given a monthly capitation payment (a fixed monthly payment for each patient) for all routine outpatient dialysis care provided to ESRD beneficiaries. Because HCFA had concluded that physicians saw home patients less often than patients receiving outpatient dialysis treatment at a dialysis facility or a hospital and that home patients required less physician involvement, a lower monthly rate was paid for home patients.

The payment amounts varied geographically, with the maximum monthly amounts allowable being \$260 for facility patients and \$182 for home patients during the period July 1978 to August 1983. From July 1974 through June 1978 the maximum allowable rate was \$240 for facility patients and \$168 for home patients.

Under the ARM, physicians who cared for ESRD patients had the option of receiving the ARM payment for inpatient hospital services or billing separately for such services on a fee-for-service basis. However, when the physician billed separately for inpatient hospital services, carriers were required to reduce the monthly capitation payment by 1/30 for each day during the month the patient was hospitalized. The amounts allowed for facility patients were higher than those for home patients. HCFA believed this provided a disincentive for physicians to arrange less costly home dialysis, and it is true that though many nephrologists agree that up to 40 percent of the 64,000 uremics in the federal program could be dialyzed at home, only 17 percent do so.³⁷

In August 1983, in order to reduce the disincentive for home dialysis, HCFA eliminated the initial method and the ARM and implemented a new monthly capitation payment (MPC) system for routine outpatient physician services. The new system, like the ARM, made only one monthly payment for outpatient services. However, MPC eliminated the differences in rates for facility and home patients and changed the method of computing the monthly payment. MPC's single rate increased reimbursement for services to home patients and reduced it for facility patients. Physicians still had the option of accepting the

MPC payment for inpatient services or billing on a fee-for-service basis for such services. The payment amounts were computed using 1979 physician charge data and varied by geographical areas. Under MPC the maximum and minimum allowable monthly amounts were \$220 and \$144 respectively.

Through its single rate, MPC was intended to act as an economic incentive for physicians to promote home dialysis. The reason for this was that though physicians saw home patients less often than facility patients, they received the same monthly payment for each. The HHS said the new rules would lop \$180 million a year off the \$2 billion program in fiscal year 1984 and even more later; a two-year phase-in was planned.³⁸

The Reagan administration actions to reduce reimbursement for kidney dialysis received and continues to receive great opposition from physicians. They feel federal regulation will compromise the care of patients and warn HHS that reduction could backfire financially. Reduced funding may cause a cutback in dialysis personnel and thus a decline in the level of care, which could lead to costly hospitalization at federal expense. The president of the National Kidney Foundation recognizes that home dialysis is underused, yet he cautions that the new reimbursement rules could lead to inappropriate switches from facility to home treatment. He further contends that savings are overestimated.

The common complaint referred to Health and Human Services from numerous medical groups is that the new physician reimbursement formulas would lower doctor income from the program by 30 percent, thus discouraging qualified physicians from entering the field.³⁹

Transplant and Dialysis: The Cost/Benefit Question

The two modalities of treatment for ESRD patients, kidney transplantation and long-term or chronic dialysis, cost in the neighborhood of \$23,000 during the first year.⁴⁰ However, after the first year, the successful transplant patient will see the yearly costs drop to a maximum of \$5,000, while the annual expenses of the patient on chronic, in-center dialysis remain the same or, in the case of continuous ambulatory peritoneal dialysis, may go even higher (see Table 1).⁴¹

Carolyn K. Davis, administrator of HCFA, said in her testimony to a congressional subcommittee that the status of kidney transplantation as it applies to the End-Stage Renal Disease Program is primarily a dialysis program which HCFA operates. (On December 31, 1982, HCFA reported that 70,055 patients with end-stage renal disease were entitled to Medicare benefits. On that date, HCFA said, a total of 65,763 Medicare and non-Medicare patients were receiving dialysis treatments.)⁴² Davis said that 38,650 kidney transplantations have been performed since the program began a decade ago. "We now have roughly 15,700 individuals who are currently still alive and living with a functioning transplanted kidney."⁴³ Davis brought to the committee's attention the recent findings of HCFA's research staff, which showed that "a group of transplant patients would cost the Medicare program less than a group of dialysis patients after a four-year period of time when one aggregates the costs for the four-year period and considers them."⁴⁴

Despite these glaring cost differences, the number of ESRD patients on chronic dialysis is increasing, while the number of

Table 1
Comparison of Average Costs Per Patient*

Treatment	1st yr (\$)	2nd yr (\$)	3rd yr (\$)	All Subsequent yrs (\$)
Home hemodialysis	22,760	13,237	13,237	13,237
In-center hemodialysis				
National	24,800	24,800	24,800	24,800
Iowa	32,000	32,000	32,000	32,000
Continuous abdomino- peritoneal dialysis	14,000- 44,000	14,000- 44,000	14,000- 44,000	14,000- 44,000
Cadaver donor transplant	23,400	3,000	1,500	750
Living-related transplant	20,700	1,500	500	500

*Thomas J. Blommers, Barbara Schanbacher, and Robert J. Corry,
"Transplant and Dialysis: The Cost/Benefit Question," Iowa Medicine
(January 1984): 17.

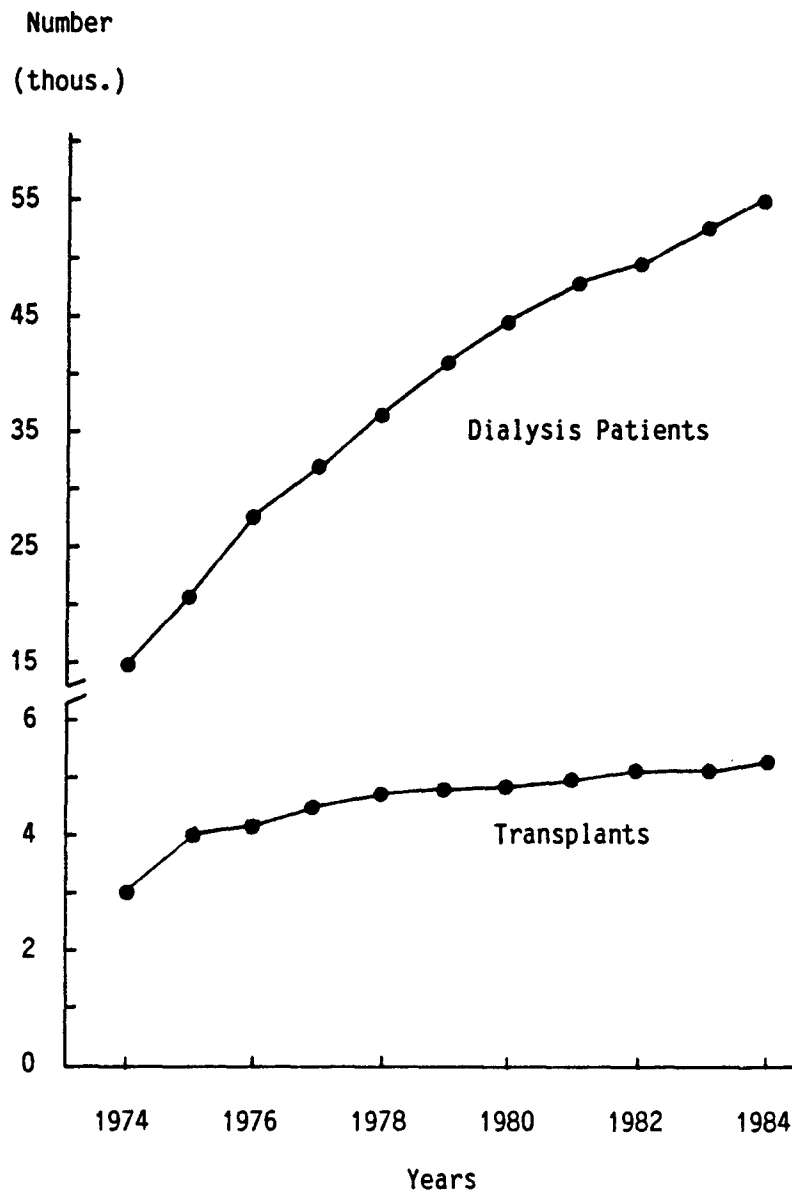
transplants remains constant (see Figure 3).⁴⁵ Several factors account for this seemingly inequitable situation. First of all, with improvements in technology, the number of dialysis centers is multiplying rapidly, thus making their services increasingly available at a local level. These centers are able to treat older and otherwise higher risk patients who in the past would not have been treated. With more ESRD patients surviving indefinitely on chronic dialysis, each year their numbers grow exponentially. In addition, as a result of the numerous blood transfusions necessary during long-term dialysis, a number of patients begin to develop cytotoxic antibodies against potential donor organs, rendering them poor risk candidates for transplantation.

The cost for dialysis treatment of ESRD in military hospitals is part of the hospital's operating budget and is not supported by the Medicare program. Increased clinical experience and improvements in technical capabilities have permitted extension of hemodialysis treatments to more high risk patients (such as diabetics) with ESRD--patients who must be cared for in both military and civilian dialysis units. In the military the increased dialysis load can put a major strain on the hospital budget. With the cost of treating ESRD patients rising, military facilities that treat these patients must increase their efforts to control the cost of treatment, and any effort that would decrease the number of patients receiving in-center hemodialysis without sacrificing their survival would be less expensive.

In contrast, the availability of suitable cadaveric organs for transplantation has remained the same or decreased over the years,

Figure 3

**Annual Number of Dialysis and Transplant Patients
since 1974 and Projected Number for 1984***



* Thomas J. Blommers, Barbara Schanbacher, and Robert J. Corry,
"Transplant and Dialysis: The Cost/Benefit Question," Iowa Medicine
(January 1984): 16.

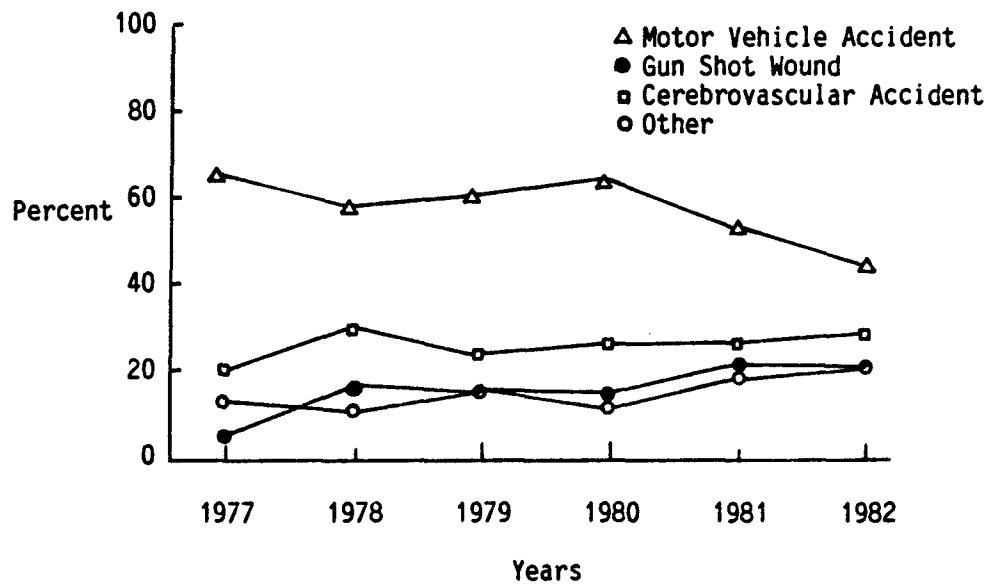
primarily due to the reduction in the number of motor vehicle accidents as a result of lower speed limits (see Figure 4).⁴⁶ In the United States there are many more patients waiting for transplants than there are organs available, and over the next decade the disparity between supply and demand in organ transplantation will increase dramatically.⁴⁷ There are approximately 20,000 new cases of end-stage renal disease per year, and we are currently obtaining roughly 5,000 kidneys per year.⁴⁸ In 1983 approximately 5,600 kidneys were transplanted. An estimated 12,000 patients could benefit from a transplant if it were available, according to the National Kidney Foundation.⁴⁹

Several hundred patients and the members of their families are waiting for donor organs that could mean the removal of the end-stage renal disease sufferer from a dialysis machine, according to Major Carlos Fernandez-Bueno, Chief of the Army/Navy Transplant Service at the Walter Reed Army Medical Center.⁵⁰ Major Fernandez-Bueno says that the bottleneck for transplant surgery is the small number of possible sources for donors available. In 1984 the Department of Defense had estimated, based on DOD medically eligible people, the potential number of military patients requiring kidney transplants at 240 to 400.⁵¹ When the Army Organ Transplant Center cannot obtain organs from volunteer donors, it must purchase the needed kidney on the open market; in 1982 half the cadaveric kidneys transplanted were provided from civilian agencies at an approximate cost of \$9,000 each.⁵² Other costs for which the Army is responsible include those associated with transplant surgery performed in a civilian hospital for a recipient who is entitled to CHAMPUS benefits.

Figure 4

Cause of Donor Death over Time*

Motor vehicle fatalities are decreasing while
other causes of death remain constant.



*Thomas J. Blommers, Barbara Schanbacher, and Robert J. Corry,
"Transplant and Dialysis: The Cost/Benefit Question," Iowa Medicine
(January 1984): 16.

However, even if organs were available and demand existed, the military program is restricted to the performance of no more than fifty transplants per year due to funding limitations.⁵³ According to Dr. Fernandez-Bueno, it would be more cost effective to expand the program.

A significant advantage that the successful transplant patient has over the long-term dialysis patient comes from improvement in the quality of life. Freed from severe dietary restrictions and the constant necessity of being near or hooked to a dialysis machine, the transplant recipient finds greater potential for rehabilitation.⁵⁴

An analysis by Rosenbaum, Corry, and Atcherson revealed that 88 percent of transplant recipients were fully rehabilitated. Contrasting to this report, Roy, Freeman, and Atcherson found that only 48 percent of ESRD patients under age sixty years were able to continue working after initiation of home hemodialysis treatments.⁵⁵ Although many dialysis patients are quite satisfied with their treatment, many take a dim view of their numerous restrictions, and most would be hard pressed to compare their life styles favorably with those of successful transplant recipients.

Social Aspects of the End-Stage

Renal Disease Program

Encouraged Voluntarism

The public policy in the United States toward organ donation is one of "encouraged" voluntarism. This policy enables individuals to donate organs legally through the use of "living wills" or donor cards. The system also insists upon informed consent on the part of family members of those recently deceased in order to protect personal

autonomy against the powerful demands of both the medical profession and those desperately in need of a transplant. The Uniform Anatomical Gift Act of 1968 recognized the legal status of donor cards and living wills, as well as the right of the next-of-kin to make donations on the behalf of relatives who had never indicated an unwillingness to serve as an organ donor. The moral argument that carried the day was that voluntarism encouraged socially desirable virtues, such as altruism and benevolence, without running the risk of abusing individual rights. Such a policy had the added benefit of not requiring a strong government role. It presumed free choice while imposing little risk to the rights of religious minorities.

In the 1970s and 1980s the public policy of encouraged voluntarism for cadaver organs transplantation resulted in the creation of a complex network of organizations, civic groups, and profit and not-for-profit procurement agencies which took on the job of matching potential donors with those in need. Organizations such as the National Kidney Foundation undertook massive publicity efforts to educate the public about the need for organs and the desirability of carrying a donor card. However, many people found the subject of donation so gruesome that they ignored appeals. Surveys showed that while two-thirds of those questioned were willing to donate their kidneys after death, only one-fifth of them actually carried an organ donor card.⁵⁶ Given the relatively low rates of public participation in the donor card program, it was quite unlikely that anyone who might have actually served as a donor would be carrying a card at the time of death. Nor were hospitals particularly eager to become involved with cadaver organ

transplantation, even when potential donors did in fact carry donor cards. Despite the law sanctioning the legitimacy of the cards, many hospitals were afraid of facing costly litigation by family members who did not agree with the wishes of the deceased. Other hospitals saw no financial incentive for taking on the complex and time-consuming procedures of organ salvaging. Some hospital personnel did not ask out of ignorance; others were unwilling to broach the subject of transplantation with family members under any circumstances and simply disregarded the donor cards to protect the family from further "unnecessary" anguish. However, in other hospitals medical personnel were well trained and quite willing to make a request. Fairness alone demanded a more equitable distribution of the burdens of decision making among the relatives of potential donors.

Presumed Consent

In an attempt to close the supply and demand gap, it has been suggested that federal policy be adopted to permit organs to be removed from any deceased person unless that person has specifically objected to that procedure during his lifetime. Under such a system the burden of decision with respect to cadaver donation is equitably allocated. Anyone suffering the tragic and unexpected loss of a loved one would know that organ donation was routine. Medical personnel would be asked to perform the far more psychologically manageable task of inquiring whether the potential donor or family had any objection to ordinary practice. Governmental and regulatory authorities would be responsible for assuring that all hospitals complied with the society's frequently expressed desire to utilize organs to save lives and restore vital

biological functions whenever possible.

In spite of its obvious advantages, many people feel presumed consent is not quite the American way. It is relatively coercive compared to the more classical freedom of choice that characterizes our way of life. Other countries, however, do not seem to have these objections. Thirteen countries already depend on presumed consent as the basis for removing organs for transplantation, and some of them also use some form of donor card.⁵⁷ In the absence of family, all but three of twenty-eight countries surveyed in a study conducted by Frank Stuart and others permit organs to be removed at the request of hospital officials or medical examiners.⁵⁸ Though countries with presumed consent laws come closer to meeting the demand for organs, they still have sizable waiting lists for kidney transplants. The reason for the disappointing results is that presumed consent laws increase the likelihood of kidney salvage after a potential donor has been identified, but they do little or nothing to stimulate hospital-based nurses and physicians to aid in that identification.

Educational Programs

Another possibility of increasing the supply of kidneys in the United States lies in a national plan to step up publicity about the need for organ donation and an improved education program for both the public and the health care providers. Such a plan should address the need for individuals to consider their own response should they be asked to consent to the removal of an organ from a newly-deceased relative. The trend in medicine is for more participation in the health care decision-making process. Physicians will be assisted

most effectively if the population is informed and ready to make such decisions.

There have been programs aimed at educating the public about transplantation, but these have been so far relatively ineffective and misdirected.⁵⁹ The emphasis has been on the donor card, and the card has proved to be ineffective as a direct agent in donor availability. The card is rarely found, and even if it is found, no surgeon would go in and remove organs without permission of the next-of-kin. Therefore, it is suggested that the education programs be redirected to reach the next-of-kin rather than the donor. Medical professionals also must be educated about organ transplantation. Transplantation begins with a medical professional's awareness that a patient may be brain dead and thus a potential donor.

Legal Aspects of the End-Stage

Renal Disease Program

Legal Framework for Organ Donation

The fifty states and the District of Columbia have adopted the Uniform Anatomical Gift Act of 1968.⁶⁰ Several important aspects of the act are highlighted below. Any person who has "testamentary capacity" under the law may give all or any part of his or her body for medical or dental education or research, the advancement of medical or dental science, for therapy or for transplantation.

Under the Anatomical Gift Act, a gift of all or part of the body may be made in a will. The gift becomes effective upon the death of the person making the will without having to wait for probate to occur.

If the will is not probated or if it is later declared invalid for testamentary purposes, the gift, to the extent that has been acted upon in good faith, is nevertheless valid and effective. A gift may also be made by a document other than a will. The document, which may be a card designed to be carried, must be signed by the donor in the presence of two witnesses who also must sign the document in his presence. Delivery of the document or gift during the donor's lifetime is not necessary to make it valid. In many states, the back side of an automobile driver's license provides a convenient means for persons to make gifts of bodies or parts of bodies using the document format just described.

Special considerations for organ donation apply to patients who become "brain dead." A physician may declare a patient dead if, based on ordinary standards of medical practice, there is an irreversible cessation of spontaneous respiratory and circulatory functions. If the patient's respiration and circulation are being maintained artificially, he or she may be considered legally dead if a physician declares there is an irreversible cessation of all spontaneous brain function. Since death must be pronounced before artificial life support is withdrawn, the physician and the family may have a unique opportunity to arrange for anatomical donations, since donated organs must be removed for transplantation or storage within hours of death. (This opportunity is not available when death occurs suddenly and unexpectedly.) Relatives of the deceased may at the time of death make a gift, unless there is actual notice otherwise by the deceased or other family member or guardian who is a member of a higher "class," as prioritized in

section 3b of the statute. Article 45990-2a of the Anatomical Gift Act permits the guardian of a mentally retarded ward twelve years of age or older to petition the district court for an order authorizing the donation of one of his or her two kidneys to a father, mother, son, daughter, sister, or brother of the retarded ward.

Although the act is limited to gifts of organs from deceased persons, arrangements for the gift may be made either by the donor before death or by his or her survivors after death. The time of death is determined by the physician who attends the donor at his death or, if there is none present, the physician who certifies the death. In either case, this physician does not participate in the procedures for removing or transplanting a part, according to the statute. A person who acts in good faith in accordance with the terms of the act is not liable for damages in any civil action, nor is such a person subject to prosecution in any criminal proceeding, so long as the prerequisites for an anatomical gift have been met under the laws applicable at the time the gift was made.

A donee may reject the gift. However, if the donee accepts the gift of the entire body, the surviving next-of-kin or any other person authorized to give all or any part of the decedent's body may authorize embalming and have the use of the body for funeral services, subject to the terms of the gift. If the gift is of a part of the body, the part must be removed without unnecessary mutilation. After removal of the part, custody of the remainder of the body is given to the surviving next-of-kin or other persons under obligation to dispose of the body.

Military medical treatment facilities must adhere to all of the

provisions of the Anatomical Gift Act as well as the prescribed laws of the state where the federal facility is located. In addition, federal regulatory guidelines must be complied with. The Army assumes no liability in the case of a nonactive duty donor whose donation results in morality. Exception to this position applies only under circumstances giving rise to a claim or action under the Federal Tort Claims Act. Laws relative to organ transplantation state that the transplanting institution has a duty to the recipient to take reasonable steps to minimize the transmission of disease. Transplantation always entails the possibility of transmitting an occult disease. The benefit of increased numbers of free harvested kidneys far outweighs the potential liability associated with the transmission of an occult disease.

The National Organ Transplant Act prohibits the purchase of human organs for use in transplantation procedures.⁶¹ Violation of this provision may result in a maximum fine of \$50,000 or five years in prison, or both. However, this prohibition does not apply to "reasonable payments" for "removal, transportation, implantation, processing, preservation, quality control, and storage of a human organ" or the necessary expenses incurred by a donor.

Statement of Research

Determine the Army Medical Corps attitude, knowledge, and extent of participation in the Army Organ Transplantation Program.

Objectives

The objectives which must be achieved to accomplish this research project are as follows:

1. Identify the parameters of the Army Transplantation Program.
2. Trace the development of the federal government's involvement in the harvesting of kidneys.
3. Determine the number of military beneficiaries who are currently on renal dialysis and could undergo kidney transplant if sufficient organs were made available.
4. Determine the number of kidneys that are harvested annually.
5. Determine the physician level of participation in the Army Organ Transplant Program.
6. Determine the physician attitude about the End-Stage Renal Disease Program.
7. Determine the physician knowledge of the Department of Defense Organ Transplant Program.
8. Identify the technological, social, economic, political, ethical, and legal issues which impact on the End-Stage Renal Disease Program.

Criteria

The criteria of this research are:

1. Medical Corps officers exhibit a positive, supportive attitude toward the Army Organ Transplant Program when 70 percent or more of the physicians surveyed select the same response for questions 1 through 9.

2. Medical Corps officers' knowledge of the Department of Defense Organ Transplant Program exists when 70 percent or more of the physicians surveyed answer questions 10, 11, 12, 13, and 15 with response "agree" and/or "strongly agree."

3. Medical Corps officers' participation exists when 70 percent or more of the physicians surveyed answer questions 16 and 18 with response "agree" and/or "strongly agree."

4. Medical Corps officers' participation exists when question 12 is answered by response b, question 19 is answered with response a or b, and question 20 is answered with response b.

5. A level of $\alpha = .05$ is used in all statistical tests of significance.

Assumptions

For the purposes of this study, it is assumed that:

1. Federally owned and operated medical centers will continue to harvest kidneys for transplantation.

2. Walter Reed Army Medical Center will continue to operate the Army Organ Transplant Center.

3. A survey of the opinions of a sample of Medical Corps officers assigned to Army medical centers will be representative of the opinions of all Medical Corps officers.

4. A survey document, developed from key issues identified in the literature, can accurately assess the Medical Corps officer attitudes, knowledge, and participation in the Army Organ Transplant Program.

5. The Department of Defense Organ Transplant Program reflects the public End-Stage Renal Disease Program.

6. Physician knowledge, attitudes, and participation in the existing program directly impacts on the future development of the Army Organ Transplant Program.

Limitations

This study is constrained by the following limitations:

1. The discussion of organ harvesting is restricted to the retrieval of kidneys.
2. Opinions of Medical Corps officers in all specialties was surveyed. Many of these did not have direct patient care contact, especially with those who may have been in the position to be considered for organ donation.
3. The extent of active organ recovery at each Army medical center varies from one facility to the next.
4. This study is limited to the harvesting of cadaveric kidneys.

Research Methodology

The methodology used to pursue the stated objectives includes:

1. Review the Army regulations governing the Army Organ Transplant Program.
2. Review the literature to identify the technological, ethical, economic, political, social, and legal issues affecting the End-Stage Renal Disease Program.

3. Conduct interviews with personnel assigned to internal and external agencies involved in organ recovery. Such organizations include the Air Force Organ Transplant Program, South Texas Organ Bank, the Living Bank, the Army Organ Transplant Center, and the Brooke Army Medical Center Organ Retrieval Team.

4. Survey a representative sample of Medical Corps officers assigned to all eight Army medical centers.

CHAPTER II

DISCUSSION

Physician Questionnaire Survey

In April 1985 the researcher mailed questionnaires to 346 Army Medical Corps officers. The purpose of the questionnaire was to obtain information on the following:

- The extent of physician participation in the Army Organ Transplant Program.
- The physician attitude toward significant issues that impact on the End-Stage Renal Disease Program.
- The physician level of knowledge of the Department of Defense Organ Transplant Program.

Pretest

The questionnaire was pretested with twenty Air Force physicians and ten Air Force intensive care nurses assigned to Wilford Hall Air Force Medical Center, San Antonio, Texas. Nine pilot surveys were returned from the physician group, a response rate of 45 percent. Wilford Hall was selected for the pretest because it is the location of the Air Force Transplant Center, it is a military medical center with governing body, organization, and missions comparable to those of the Army medical centers, and it is conveniently located near the researcher.

Distribution and retrieval of survey responses was coordinated through the assistance of the Army-Baylor Health Care Administrative Resident assigned to Wilford Hall. He attached a cover letter to the pilot survey instrument and instructed each provider regarding time and place for returning their responses. Physicians and nurses in the pretest completed the questionnaire as if they had received it in the mail.

To elicit subjects' descriptions of the various difficulties and issues encountered as they completed each item, introductory comments to each survey document advised the participant to feel free to note in the margin any ambiguous statements or recommendations to improve the survey instrument. To ensure subjects were not asked leading questions, the researcher made no contact with participants.

Based on the results of the pretest the researcher revised the questionnaire to help ensure that all questions were fair, relevant, easy to understand and answer, and relatively free of design flaws that could introduce bias or error into the study results. It was determined at this time that the research effort would be limited to a survey of the opinions of Army Medical Corps officers. The responses to the pretest questionnaires were not used in the final report. A copy of the pretest survey document and the actual survey instrument can be found at Appendices 2 and 3, respectively.

Methodology

The questionnaire was mailed to physicians assigned to all eight Army medical centers. By Army regulation, these centers have been

designated as renal dialysis centers tasked to support the Army Organ Transplant Program. Single random sampling, without replacement, was employed to draw a sample of Medical Corps officers for the composite and subgroup samples. Statistical calculations for determination of sample size for estimating proportions may be found at Appendix 4. A roster of Medical Corps officers assigned to all Army medical centers was obtained from Health Services Command. Distribution of Medical Corps officers at the time of the survey is indicated at Appendix 5. The size of each single random sample to be drawn varied between each medical center, depending upon the number of Medical Corps officers assigned to the medical facility. For example, 194 Medical Corps officers were assigned to William Beaumont Army Medical Center, while Medical Corps officers assigned to Walter Reed Army Medical Center numbered 534. Each officer on the roster was assigned a number. Medical Corps officers selected for the single random sample included those officers assigned a number which corresponded to a number found in a table of random numbers.⁶² The number of officers to be selected was previously determined by dividing the number of Medical Corps officers assigned to each medical center by the total number of Medical Corps officers assigned to all eight medical centers. Statistical calculations may be found at Appendix 6.

The survey document cover letter advised each provider of the date when data collection would end. This date was highlighted in yellow. Of the 346 surveys mailed, 168 were returned, a response rate of 49 percent. Five surveys were returned after the suspense date and were not included in the final report. Fifteen surveys were "returned to sender" as a result of incorrect mailing addresses.

Physicians' Responses

To obtain an Army-wide perspective of physician responses, the researcher combined all physician responses. This was accomplished through appropriate weighting and statistical testing and estimating techniques. The remainder of this chapter presents the results of the survey questionnaire survey, analysis of each question based on findings in the literature, and analysis of composite data grouped in one of three categories: attitude, knowledge, or participation.

Individual Question Statistical

Results and Analysis

Question 1: Distribution of Donated Kidneys

<u>Number of Responses</u>	<u>Most Frequent Response</u>	<u>Standard Deviation</u>
168	Share Equally Military/Civilian	0.77

1. Kidneys harvested from military beneficiaries (active duty, dependents, retirees, etc.) in federal medical treatment facilities for transplantation should: (circle one)

	<u>Frequency</u>	<u>Percentage</u>	<u>Cumulative Percentage</u>
a. be retained for transplant into military beneficiaries	12	7.14	7.14
b. be given to civilian facilities for transplantation	2	1.19	8.33
c. shared equally between the military and civilian communities	101	60.12	68.45
d. no preference	53	31.55	100.00

As indicated in Chapter I, there is frequent discussion with regard to the problem of correctly matching organs with recipients and the distribution of organs recovered. Of the 168 physicians responding to the survey, 101 (68.4 percent) indicated that kidneys recovered from military beneficiaries in federal medical treatment facilities for transplantation should be shared equally between the military and civilian communities. Another 31 percent of the physicians had no preference on how kidneys should be distributed. It can be concluded that 91.7 percent of the physicians favored a sharing between the military and civilian communities.

Question 2: Impact of Physician Religious Beliefs

<u>Number of Responses</u>	<u>Most Frequent Response</u>	<u>Standard Deviation</u>
168	strongly agree	0.54

2. My religious beliefs do not affect my willingness to suggest kidney donation to the family of a patient who has expired.
(circle one)

	<u>Frequency</u>	<u>Percentage</u>	<u>Cumulative Percentage</u>
a. strongly agree	120	71.43	71.43
b. agree	44	26.19	97.62
c. disagree	3	1.79	99.40
d. strongly disagree	1	0.60	100.00

The literature states that it is most often that the attending physician will identify a potential donor and approach the family on the subject of kidney donation. Also discussed are moral and ethical issues of concern to the family members. However, little is said about

the impact of the physicians' ethical beliefs. This question was designed to measure the impact of personal religious beliefs on physicians' willingness to suggest kidney donation to the family. Of the 168 physicians who responded to this question, 97.6 percent indicated that their personal beliefs have no impact on suggesting organ donation to a family.

Question 3: Expand Department of Defense

Organ Transplant Program

<u>Number of Responses</u>	<u>Most Frequent Response</u>	<u>Standard Deviation</u>
168	Agree	0.85

3. The Department of Defense Transplantation Program should be expanded to include extra-renal organs. (circle one)

	<u>Frequency</u>	<u>Percentage</u>	<u>Cumulative Percentage</u>
a. strongly agree	65	38.69	38.69
b. agree	74	44.05	82.74
c. disagree	19	11.31	94.05
d. strongly disagree	10	5.95	100.00

Recent changes to the Army Organ Transplant Program authorize transplant of extra-renal organs at the Army Transplant Center with the approval of the Secretary of the Army.⁶³ In addition, Medicare funding was recently expanded to include liver transplants. Of the physicians who participated in the survey, 82.74 percent are in favor of expansion of the Department of Defense Transplant Program to include extra-renal organs.

Question 4: Financial Compensation for Family

<u>Number of Responses</u>	<u>Most Frequent Response</u>	<u>Standard Deviation</u>
168	Disagree	0.66

4. The family should be financially compensated for kidneys donated. (circle one)

	<u>Frequency</u>	<u>Percentage</u>	<u>Cumulative Percentage</u>
a. strongly agree	4	2.38	2.38
b. agree	7	4.17	6.55
c. disagree	91	54.17	60.71
d. strongly disagree	66	39.29	100.00

The literature indicates it is illegal to financially compensate a donor or his/her family for donated kidneys.⁶⁴ The American Hospital Association has gone on record against the sale of organs. Of the 168 physicians surveyed, 93.4 percent agree with the general medical community that a family should not be financially compensated for donated kidneys.

Question 5: Physician as Donor

<u>Number of Responses</u>	<u>Most Frequent Response</u>	<u>Standard Deviation</u>
168	no	0.45

5. I have made provisions to donate my organ(s) at the time of my death. (circle one)

	<u>Frequency</u>	<u>Percentage</u>	<u>Cumulative Percentage</u>
a. yes	46	72.62	27.38
b. no	122	72.62	100.00

Considerable discussion in the literature indicated that although people generally are willing to donate their kidneys after death, few actually have made provisions or carry a donor card.⁶⁵ A similar conclusion can be derived from the physicians responding to this survey when asked if they had made provisions to donate their kidneys at the time of their death. In general, the physician group demonstrated strong support for kidney recovery and donation, yet only 27.4 percent of the total responding had actually made provisions to donate their kidneys at the time of their death.

Question 6: Inform Family of Recovery Process

<u>Number of Responses</u>	<u>Most Frequent Response</u>	<u>Standard Deviation</u>
167	Agree	0.74

6. The family should be thoroughly informed about the kidney harvesting process. (circle one)

	<u>Frequency</u>	<u>Percentage</u>	<u>Cumulative Percentage</u>
a. strongly agree	38	22.75	22.75
b. agree	85	50.90	73.65
c. disagree	41	24.55	98.20
d. strongly disagree	3	1.80	100.00

Many health care providers interviewed felt that frequent communication with the family of the donor with regard to the kidney recovery procedure assists in the grieving process and should be encouraged. It aids the family to feel that they have made the correct decision to donate the kidneys of their loved one. Of the physicians responding to the survey, 73.6 percent agreed that the family should be thoroughly informed about the kidney harvesting process.

Question 7: Presume Consent by Law

<u>Number of Responses</u>	<u>Most Frequent Response</u>	<u>Standard Deviation</u>
166	Disagree	0.72

7. A law should be passed that presumes consent for kidney donation for all brain-dead patients. (circle one)

	<u>Frequency</u>	<u>Percentage</u>	<u>Cumulative Percentage</u>
a. strongly agree	6	3.61	3.61
b. agree	13	7.83	11.45
c. disagree	95	57.23	68.67
d. strongly disagree	52	31.33	100.00

It has been proposed that a national policy of presumed consent would help to decrease the gap between the supply and demand of kidneys needed for transplantation. Of the 166 persons who responded to the related survey question, 147 (88.5 percent) disagree that a law should be passed that presumes consent for kidney donation for all brain-dead patients.

Question 8: Tax Credits for Donor Family

<u>Number of Responses</u>	<u>Most Frequent Response</u>	<u>Standard Deviation</u>
167	Disagree	0.91

8. Tax credits should be provided to families of brain-dead potential kidney donors. (circle one)

	<u>Frequency</u>	<u>Percentage</u>	<u>Cumulative Percentage</u>
a. strongly agree	6	3.59	3.59
b. agree	18	10.78	14.27
c. disagree	74	44.31	58.68
d. strongly disagree	55	32.93	91.62
e. don't know	14	8.38	100.00

Although 93.4 percent of the physicians who responded to the survey felt that families should not be financially compensated for kidney donations, only 85.6 percent felt that a tax credit should not be provided to families or individuals who made kidney donations.

Question 9: Media Coverage

<u>Number of Responses</u>	<u>Most Frequent Response</u>	<u>Standard Deviation</u>
167	Agree	0.59

9. Television and other communication media should be used routinely to remind the public about the need for kidney donation. (circle one)

	<u>Frequency</u>	<u>Percentage</u>	<u>Cumulative Percentage</u>
a. strongly agree	66	39.52	39.52
b. agree	93	55.69	95.21
c. disagree	7	4.19	99.40
d. strongly disagree	1	0.60	100.00

Many argue that the gap between the supply and demand for kidneys for transplantation will be satisfied through an extensive education program. Of the 167 physicians who responded to the survey, 159 (95.2

percent) agreed that television and other communication media should be used routinely to remind the public about the need for kidney donation.

Question 10.: Physician Knowledge of Appropriate

Contacts When Donor Identified

<u>Number of Responses</u>	<u>Most Frequent Response</u>	<u>Standard Deviation</u>
168	Agree	0.92

10. I know who to call if the family of a potential donor requests to donate their loved one's kidneys. (circle one)

	<u>Frequency</u>	<u>Percentage</u>	<u>Cumulative Percentage</u>
a. strongly agree	31	18.45	18.45
b. agree	63	37.50	55.95
c. disagree	54	32.14	88.10
d. strongly disagree	20	11.90	100.00

By law, physicians are the only group that may pronounce a patient as brain-dead.⁶⁶ They are also the ones responsible for identifying which patients meet the criteria for kidney donation. Their knowledge of these aspects of the recovery program as well as who to call if a family of a potential donor proposes donation of their loved one's kidneys directly impacts on the number of kidneys that may be recovered. Only 55.9 percent of the physicians responding to the survey indicated that they knew who to call if a family decided to donate a kidney.

Question 11: Availability of Brain Death Criteria

<u>Number of Responses</u>	<u>Most Frequent Response</u>	<u>Standard Deviation</u>
167	Agree	1.25

11. Medical and clinical guidelines for deciding if a patient is brain-dead are well established at the facility to which I am assigned. (circle one)

	<u>Frequency</u>	<u>Percentage</u>	<u>Cumulative Percentage</u>
a. strongly agree	54	32.34	32.34
b. agree	70	41.92	74.25
c. disagree	20	11.98	86.23
d. strongly disagree	3	1.80	88.02
e. don't know	20	11.98	100.00

The literature indicates that the advances in medical technology allow the physician to artificially maintain vital biological functions in dead patients, which permits many organs to be salvaged for transplantation. This availability of the criteria and physician knowledge that it exists affects the number of patients who will be considered for donation. Of the 167 physicians responding to this survey question, 74 percent agreed that brain death criteria is available at the facility to which they are assigned.

Question 12: Physician Awareness of Organ

Donation Criteria

<u>Number of Responses</u>	<u>Most Frequent Response</u>	<u>Standard Deviation</u>
168	Disagree	0.78

12. I am aware of the acceptable criteria which make a terminally ill patient a possible candidate for kidney donation.

	<u>Frequency</u>	<u>Percentage</u>	<u>Cumulative Percentage</u>
a. strongly agree	22	13.10	13.10
b. agree	68	40.48	53.57
c. disagree	69	41.07	94.64
d. strongly disagree	9	5.36	100.00

Clinical criteria exist for selection of potentially acceptable donors (see Appendix 8). Certain medical conditions preclude kidney donations. Physician exposure to and knowledge of the limitations for organ donation impact on whether he/she will consider patients for donations. Of the 168 physicians responding to the survey, 53 percent are aware of the criteria which make a terminally ill patient a potential candidate for kidney donation.

Question 13: Physician Awareness of Department
of Defense Organ Transplant Program

<u>Number of Responses</u>	<u>Most Frequent Response</u>	<u>Standard Deviation</u>
168	Agree	0.93

13. I am aware that the Department of Defense has an Organ Transplant Program: Air Force Transplant Program--Wilford Hall AFMC; Army Transplant Program--Walter Reed AMC. (circle one)

	<u>Frequency</u>	<u>Percentage</u>	<u>Cumulative Percentage</u>
a. strongly agree	46	27.38	27.38
b. agree	59	35.12	62.50
c. disagree	49	29.17	91.67
d. strongly disagree	14	8.33	100.00

The literature indicates that physicians as well as other health care professionals need to be educated about the kidney transplant program. Only 62.5 percent of the physicians who responded to the survey indicated that they were aware that the Department of Defense has an Organ Transplant Program.

Question 14: Education Program Target Group

<u>Number of Responses</u>	<u>Most Frequent Response</u>	<u>Standard Deviation</u>
167	four or more	1.12

14. The following group should receive more education with regard to kidney donation. (circle one)

	<u>Frequency</u>	<u>Percentage</u>	<u>Cumulative Percentage</u>
a. physicians	3	1.80	1.80
b. nurses	1	.60	2.40
c. hospital administrators	1	.60	2.99
d. patients	1	.60	3.59
e. family	1	.60	4.19
f. general public	10	5.99	10.18
g. four or more	113	67.66	77.84
h. three or less	37	22.16	100.00

In general the literature and the physician group that responded to the survey agree that more education is needed to increase awareness of the need for kidneys and programs to support organ recovery. Physician survey responses indicated the target groups for education programs in the following priority:

<u>Priority</u>	<u>Frequency</u>	<u>Percentage</u>
General public	149	88.7
Physicians	142	84.5
Nurses	119	70.8
Patients	113	67.3
Family	109	64.9
Hospital administrators	104	61.9

Question 15: Physician Received Continuing
Education Regarding Kidney Recovery

<u>Number of Responses</u>	<u>Most Frequent Response</u>	<u>Standard Deviation</u>
167	Disagree	0.81

15. I have received continuing education regarding kidney
harvesting at some time during my present duty assignment.
(circle one)

	<u>Frequency</u>	<u>Percentage</u>	<u>Cumulative Percentage</u>
a. strongly agree	9	5.34	5.39
b. agree	17	10.18	15.57
c. disagree	82	49.10	64.67
d. strongly disagree	59	35.33	100.00

The literature indicates that physicians as well as other health care providers need to be educated about kidney recovery programs. This is reinforced through the survey instrument, whereby 26 of 167 physicians who responded to the survey (15.5 percent) indicated that they received continuing education regarding kidney harvesting sometime during their present duty assignment.

As indicated earlier in the research discussion, many of the Medical Corps specialties do not become involved in situations which require consideration of kidney donation. Assuming that the group which selected "not applicable" for questions 16 through 19 are among these specialties, the analysis of these questions will not include their responses in the discussion.

Question 16: Patients Considered for
Kidney Donation

<u>Number of Responses</u>	<u>Most Frequent Response</u>	<u>Standard Deviation</u>
167	not applicable	1.59

16. Patients that I attended who have suffered brain death and have otherwise met acceptable program criteria have been considered for kidney donation. (circle one)

	<u>Frequency</u>	<u>Percentage</u>	<u>Cumulative Percentage</u>
a. strongly agree	44	26.35	26.35
b. agree	47	28.14	54.49
c. disagree	18	10.78	65.27
d. strongly disagree	10	5.99	71.26
e. not applicable	48	28.74	100.00

Ninety-one of the 119 physicians who responded to the survey (76.5 percent) indicated that patients they attended who suffered brain death and otherwise met acceptable organ donation criteria were considered for kidney donation. Sample brain death criteria may be found at Appendix 9.

Question 17: How Donors Identified

<u>Number of Responses</u>	<u>Most Frequent Response</u>	<u>Standard Deviation</u>
167	not applicable	1.85

17. Most patients that I attended were identified for kidney donation by: (circle one)

	<u>Frequency</u>	<u>Percentage</u>	<u>Cumulative Percentage</u>
a. attending physician	64	38.32	38.32
b. nurse	4	2.40	40.72
c. family member	18	10.78	51.50
d. other: _____	5	2.99	54.49
e. not applicable	76	45.51	100.00

Sixty-four of the 91 physicians who responded to the survey (71 percent) indicated that patients they attended were identified for kidney donation by the attending physician.

Question 18: Assistance Sought for Organ Recovery

<u>Number of Responses</u>	<u>Most Frequent Response</u>	<u>Standard Deviation</u>
168	not applicable	1.50

18. I actively seek assistance from the director of the transplant program and/or the organ procurement agency when I identify a patient as a potential kidney donor. (circle one)

	<u>Frequency</u>	<u>Percentage</u>	<u>Cumulative Percentage</u>
a. strongly agree	18	10.71	10.71
b. agree	31	18.45	29.17
c. disagree	26	15.48	44.64
d. strongly disagree	8	4.76	49.90
e. not applicable	85	50.60	100.00

A "not applicable" response to the question of whether the responding physician seeks assistance with the organ donation process may indicate not only that the specialty prevents involvement but also that the question was too ambiguous or that it lacked an appropriate response for the program established at that facility. Nevertheless, of the remaining 83 physicians who responded to the survey 49 physicians (59 percent) indicated that they did seek assistance from an organ donation program director or an organ procurement agency, while 34 physicians (41 percent) indicated that they did not seek assistance. These responses render conclusions regarding the question of the physician's need to seek assistance for organ recovery inappropriate.

Question 19: Family Questioned about Donation

<u>Number of Responses</u>	<u>Most Frequent Response</u>	<u>Standard Deviation</u>
168	not applicable	1.71

19. The family was questioned about kidney donation. (circle one)

	<u>Frequency</u>	<u>Percentage</u>	<u>Cumulative Percentage</u>
a. 1 to 3 days prior to death	38	22.62	22.62
b. at the time of death	21	12.50	35.12
c. within 5 hrs postdeath	4	2.38	37.50
d. never	17	10.12	47.62
e. not applicable	88	52.38	100.00

It has been proposed that hospitals and physicians should take the lead in asking the family of the deceased or brain-dead victim.⁶⁷ Of the physicians who did question the family about kidney donation, 59 of 89 (74 percent) did so either at the time of death or one to three days prior to death. Thirty-eight of 80 (47 percent) indicated that they confronted the family one to three days prior to death. Seventeen of 80 physicians indicated that they never questioned the family about kidney donation.

Question 20: Individual to Obtain Consent

<u>Number of Responses</u>	<u>Most Frequent Response</u>	<u>Standard Deviation</u>
168	attending physician	1.25

20. Next-of-kin consent for kidney donation should be obtained by: (select one)

	<u>Frequency</u>	<u>Percentage</u>	<u>Cumulative Percentage</u>
a. nurse	2	1.19	1.19
b. attending physician	138	82.14	83.33
c. chaplain	1	.60	83.93

	<u>Frequency</u>	<u>Percentage</u>	<u>Cumulative Percentage</u>
d. Director, BAMC Trans- plantation Program	16	9.52	93.45
e. Organ Bank	2	1.19	94.64
f. social worker	1	.60	95.24
g. other: _____	8	4.76	100.00

Of the 168 physicians responding to the survey, 138 (82.1 per-cent) indicated that the next-of-kin consent for kidney donation should be obtained by the attending physician. The literature indicates that this is an unpleasant task frequently neglected by the physician group; nevertheless the group of physicians responding to the survey recognized it as a physician responsibility.

Composite Group Analysis

Survey questions were designed to address key issues confronting the End-Stage Renal Disease Program which ultimately impact on the implementation of the Army Organ Transplant Program. Questions can be categorized into one of three groups: attitude, knowledge, or participation in the program. Data were tabulated according to one of nine age groups based on the age of the physician responding to the survey. The mean response for each question by category and age group was statistically computed. Tabulated data can be found at Appendix 10. Composite data are tabulated for comparison among age groups and comparison to the mean of the total sample of physician responses.

Survey questions 2, 3, 9, 12, 15, 18, 19, and 20 were specifically designed to identify the attitude of the physicians with respect to a key issue affecting the program. Questions 1, 6, 7, 8, 14, and 17

were designed to identify the physician level of knowledge of the Department of Defense Organ Transplant Program. Questions 4, 5, 10, 11, and 13 were designed to identify the level of physician participation in the organ recovery program. This numbering sequence corresponds to the survey instrument at Appendix 3. It neither corresponds to the order of the questions as discussed in the Individual Question Analysis section of this chapter nor the order in which questions will be discussed hereafter. In this case, questions are discussed according to category (attitude, knowledge or participation). This information will be invaluable for evaluation of the existing program and for designing future organ recovery programs for the military.

For the purpose of simplifying the statistical computations, each response to all questions was numerically coded. The coding system is illustrated below:

<u>Response</u>	<u>Code</u>
a. strongly agree	1
b. agree	2
c. disagree	3
d. strongly disagree	4

For example, item 16 refers to question 3 of the survey instrument, which asks whether the physician's religious beliefs affect his/her willingness to suggest kidney donation to the family of a patient who has expired. The mean response in this case was 1.32, which indicates that the majority of the participants selected either "a" or "b." In fact, 120 physicians selected response "a" and 44 physicians selected response "b." In other words, 97.6 percent of

the physicians agreed that their personal religious beliefs did not affect their willingness to suggest kidney donation to a family.

However, for the purpose of analysis of the data for composite attitude, knowledge, and participation, it is not necessary to identify the response with the coded value. What is important is to recognize any change in the mean response across the age groups. Age group 7 to 0 will not be considered in the analysis, because the N is too small to provide meaningful information to the analysis.

One final point should be considered. It is interesting to note that 77.4 percent of the physicians who responded to the survey were between the ages of 25 and 39. This is significant in that these are the physicians who are generally attending the patients and will be the ones to implement the recovery program.

Attitude Analysis

There is no significant change in the mean response across all age groups for items 15 through 23. There is no significant difference between the mean of each group and the mean response of the total group of physicians. Of the physicians responding to the survey there existed a consistent positive attitude with regard to the issues raised. In other words, these physicians generally agreed that:

1. Kidneys harvested from military beneficiaries in federal medical treatment facilities for transplant should be shared equally between the military and civilian communities. Response rate = 81.7% (item 15)

2. Physicians' religious beliefs do not affect their willingness to suggest kidney donation to the family of a patient who has

expired. Response rate = 97.6% (item 16)

3. The Department of Defense Organ Transplantation Program should be expanded to include extra-renal organs. Response rate = 82.7% (item 17)

4. Families should not be financially compensated for kidneys donated. Response rate = 93.4% (item 18)

5. Physicians have made no provisions to donate their own organs at the time of their death. Response rate = 72.6% (item 19)

6. The family should be thoroughly informed about the kidney harvesting process. Response rate = 73.6% (item 20)

7. A law should not be passed that presumes consent for kidney donation for all brain-dead patients. Response rate = 88.6% (item 21)

8. Tax credits should not be provided to families of brain-dead potential kidney donors. Response rate = 85.6% (item 22)

9. Television and other communications media should be used routinely to remind the public about the need for kidney donation. Response rate = 95.2% (item 23)

Knowledge Analysis

With the exception of item 26, group 5, ages 40 to 44, there was no significant change in the mean response across all age groups and the mean response of the total group of physicians. The mean response of 2.00, item 26, group 5, ages 40 to 44, indicates that this group has a greater level of knowledge than any other group of the acceptable criteria which make a terminally ill patient a possible candidate for kidney donation.

Item 28 reflects a selection of four or more target groups for

continuing education with regard to the organ transplant program. The exact breakdown by group is indicated in the Individual Question Analysis section of this chapter, question 14.

In general the physicians responding to the survey indicated that there exists a common base of knowledge with regard to the Department of Defense Organ Transplant Program. However, the extent of this knowledge is below the acceptable level determined for this survey. Additional education is required as will be seen upon analysis of the data.

In other words physicians agreed that:

1. They knew who to call should the family of a potential donor propose donation of their loved one's kidneys. Response rate = 55% (item 24) The split 55% agree, 45% disagree response distribution indicates that education is necessary.

2. Medical and clinical guidelines for deciding if a potential patient is brain-dead are well established at the facility to which they were assigned. Response rate = 74.3% (item 25)

3. They were aware of the acceptable criteria which make a terminally ill patient a possible candidate for kidney donation. Response rate = 53.5% (item 26) The 53.5% agree, 46.4% disagree response distribution indicates that education is necessary.

4. They were aware that the Department of Defense has an Organ Transplant Program. Response rate = 62.5% (item 27) The 62.5% agree, 37.5% disagree response distribution indicates that education is necessary.

5. Four or more groups should receive more education with

regard to kidney donation. Response rate = 67.6% (item 28) For specific target groups see Individual Question Analysis section, Chapter II, question 14.

6. They had not received continuing education regarding kidney harvesting during their present duty assignment. Response rate = 84.4% (item 29) This response indicates that continuing education for the physician group is necessary.

Participation Analysis

With the exception of items 30 and 31, group 4, ages 35 to 39, there is no significant change in the mean responses across all age groups and the mean response of the total group of physicians. Mean responses 3.22 for item 30 and 3.42 for item 31 indicate that this group of physicians was more inclined to disagree with other age groups and the total group or that the question was not applicable to their situation.

The most frequently selected response for items 30 to 33 was "not applicable." For interpretation of these questions this group of responses was dropped from the data analysis. To gain a clearer understanding of the level of participation of age groups, refer to the analysis of questions 16 through 19 in the Individual Question Analysis section of this chapter.

In general for physicians who indicated that the question referred to a situation that was applicable to them there was a common level of active participation in the program reflected by response rates greater than 70%. In other words, these physicians agreed that:

1. Brain-dead patients attended by them who otherwise met

acceptable program criteria were considered for kidney donation.

Response rate = 76.5% (item 30)

2. They actively sought assistance from the director of the transplant program and/or the organ procurement agency when they identified a patient as a potential kidney donor. Response rate = 59% (item 31) The 59% response rate for this question reflects a low level of participation as defined by the survey criteria. However, this rate may be caused by the disparity of organization of the organ recovery program at the eight distinctly different medical centers represented. Assignment of responsibilities and local support agencies vary from one facility to the next, thereby affecting the local program policy. Further research is necessary to identify specifically why this response was selected.

3. Most patients attended by them were identified for kidney donation by the attending physician. Response rate = 71% (item 32)

4. The family was questioned about kidney donation one to three days prior to death or at the time of death. Response rate = 74% (item 33)

5. The next-of-kin consent for kidney donation should be obtained by the attending physician. Response rate = 82.1% (item 34)

CHAPTER III
CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Review of the literature clearly demonstrates that health care costs continue to rise and the federal government portion of these bills in Medicare dollars continues to increase as well. Although money to support federally funded health care programs decreases proportionally, public demand continues to increase, as evidenced by the evolution of the Social Security Program which culminated in total funding of the End-Stage Renal Disease (ESRD) Program.

Since 1978 Congress has become very cost conscious. Efforts to control costs of the End-Stage Renal Disease Program include action to promote efficiency and economy in renal services, establishment of a prospective payment system to promote more cost-effective treatment methods, and most recently the development of a program to promote viable organs for transplant.

In discussing the technological aspects of the ESRD program, it was discovered that there are two treatment modalities--dialysis and transplant. Review of the cost/benefit analysis data for dialysis and transplant revealed a high dollar annual cost per patient on dialysis and the number of chronic dialysis patients continuing to increase. A significant long-term cost savings with the transplant method could be realized, but there is a significant disparity between the supply and

the demand for kidneys for transplantation. This creates extensive lists of persons in both the military and civilian communities awaiting kidney transplant. Once medical researchers prove that transplantation is effective and that it is not more likely to harm the patient than help, the demand for organs by Department of Defense beneficiaries will increase dramatically. Individuals provided health care coverage under the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) will expect and demand these services.

Discussion of the technological aspects of the issue reveals astonishing advances in medicine which suggest a bright future for ESRD patients but a medical community that may be caught unprepared to take advantage of the opportunities available to implement the new and/or more effective treatment modalities.

American social policy expresses strong values such as freedom of choice, autonomy, benevolence, and altruism. Education is considered by our society to be the most effective means to increase the supply of kidneys needed for transplantation and to inform the public and professional communities of the multiple organizations involved in the procurement of kidneys. The laws of our society reflect the social policy and value system protecting the rights of those who are not able to speak for themselves.

The results of the present survey show that the sample of Army Medical Corps officers reflected the values of society, in that their personal beliefs did not interfere with the rights of others. They upheld freedom of choice and informed decision making and autonomy and did not desire a public policy of presumed consent. A philosophy of

benevolence was maintained as evidenced by nonsupport of programs that financially reward, either directly through sale or indirectly through tax credits, those individuals or family members who make kidney donations. Altruism was reflected in the positive attitude toward sharing all kidneys recovered equally between military and civilian communities. Finally, they too identified education as the means to obtain an increased supply of kidneys, suggesting that television and other communication media be employed to increase awareness and knowledge of society as a whole.

The physician group demonstrated a need for education both in terms of clinical knowledge and awareness of support agencies to assist in the organ procurement process. At the same time the group willingly identified itself as a primary target group for continued education.

The physician sample expressed a genuine interest in participating in identifying potential donors, in communicating with the family, and in obtaining consent for kidney donation. This was further exemplified by their overwhelming response in favor of expansion of the Department of Defense Organ Transplant Program.

Dr. John F. Beary III, Acting Assistant Secretary of Defense for Health Affairs, pledged to bring the assets of military medicine to bear on the organ procurement problem when he testified before the House Science and Technology Subcommittee on Investigation and Oversight, chaired by Representative Albert Gore, Jr.⁶⁸ He further testified that by approaching the problem systematically, the United States can come up with a very reasonable program to alleviate the problem of organ shortage. Dr. Beary's ideas are sound, since the Army

is a well-organized system which has the potential to not only satisfy the demand for kidneys in support of military beneficiaries but also to support local community needs. The Army can address within its own ranks the issues identified in the literature and discussed throughout this research effort. Transplant facilities at Walter Reed Army Medical Center can be utilized to greater capacity with promotion of the existing transplant program. What is needed is an extensive evaluation of the past, present, and future of this program.

Recommendation

It is strongly recommended that, in view of the demonstrated need for kidneys for transplantation, the positive attitude and level of interest in the program on the part of Medical Corps officers, and the substantial asset savings that could be realized, the Army Transplant Program be extensively evaluated and modified appropriately to meet the demands of the supported community. The first step in evaluating such a program should be the appointment of an ad hoc committee to conduct the review. This committee should:

1. Conduct a comprehensive review of the medical, legal, ethical, economic, and social issues that directly impact on the Army Organ Procurement and Transplant Program.

2. Provide an Army-wide focus for strengthening the ability of the military health care system to provide organ transplants--

- * to increase awareness of organ donation.
- * to increase the number of organs donated.
- * to improve the coordination of organ procurement.

- * to improve the matching of donor organs with potential recipients.

3. Build upon existing relationships between the federal treatment facilities, private organizations, and voluntary health organizations to increase organ donations and improve the organ procurement system.

4. Build upon the existing loosely-knit Army Organ Transplant Program to improve coordination of the organ procurement process. The regionalization concept can be expanded to support a network of organ procurement efforts ongoing at the community hospital and medical centers.

5. Assess vital aspects of organ donation/organ procurement/organ transplantation process. Evaluation should include:

- * Factors that diminish the number of organs available for transplantation.
- * Problems in coordinating procurement of viable organs.
- * Recommendations for education and training health professionals in organ procurement.
- * Recommendations for educating active duty service members and military beneficiaries in organ procurement.
- * Recommendations for assuring equitable access by patients to organ transplantation and for assuring equitable allocation of donated organs among patients medically qualified for an organ transplant.
- * Identification of barriers to donation of organs to patients.
- * Recommendations for the conduct and coordination of continuing Army research concerning all aspects of transplantation of organs.
- * Analysis of the manner in which organ transplantation technology is diffused among and adopted by qualified medical centers.

- * An assessment of the feasibility of establishing and the likely effectiveness of a Department of Defense Registry for military beneficiary organ donors.

A definite period of time should be established for this extensive study. Results from one year to eighteen months should be sufficient to document not only the savings but also the added benefit that individuals can sustain from being cared for by this type of treatment modality. A formal report should be submitted to the Surgeon General for consideration. Once the program changes are approved, implementation of the Army-wide Organ Transplant Program modifications should be undertaken.

The study should culminate in an implementation plan designed to effect a program that will provide a service that is socially and legally acceptable, takes advantage of new technologies, and meets the demand for medical care while utilizing the most cost-effective means to deliver that care. As the present study has illustrated, Medical Corps officers have a positive, supportive attitude and a demonstrated willingness to participate in an organ recovery program. These physicians admit that continuing education is necessary, primarily for themselves as well as the general public. If the Army Medical Department (AMEDD) does not take the initiative to examine the existing program and propose changes to the Surgeon General that will promote kidney recovery, this researcher predicts that the AMEDD will find the Department of Defense and the Secretary for Health Affairs prescribing program changes for it, without the benefit of AMEDD input.

APPENDIX 1
Death Standard for Determination
and Liability

DEATH - STANDARD FOR DETERMINATION

AND LIABILITY

CHAPTER 165¹¹

H. B. No. 12

An Act relating to a standard for determining death and declaring an emergency.

Be it enacted by the Legislature of the State of Texas;

Section 1. (a) A person will be considered legally dead if, based on ordinary standards of medical practice, there is the irreversible cessation of spontaneous respiratory and circulatory functions.

(b) If artificial means of support preclude a determination that spontaneous respiratory and circulatory functions have ceased, a person will be considered legally dead if in the announced opinion of a physician, based on ordinary standards of medical practice, there is the irreversible cessation of all spontaneous brain function. Death will have occurred at the time when the relevant functions ceased.

(c) Death is to be pronounced before artificial means of supporting respiratory and circulatory functions are terminated.

Sec. 2. A physician who determines death in accordance with the provisions of Section 1(b) of this Act is not liable for damages in any civil action or subject to prosecution in any criminal proceeding for his or her acts or the actions of others based on that determination.

Sec. 3. A person who acts in good faith in reliance on a determination of death by a physician is not liable for damages in any civil action or subject to prosecution in any criminal proceeding for his or her act.

Sec. 4. The importance of this legislation and the crowded condition of the calendars in both houses create an emergency and an imperative public necessity that the constitutional rule requiring bills to be read on three several days in each house be suspended, and this rule is hereby suspended, and that this Act take effect and be in force from and after its passage, and it is so enacted.

Passed by the House on April 9, 1979; Yeas 130, Nays 2, 5 present, not voting: passed by the Senate on May 4, 1979; Yeas 24, Nays 1.

Approved May 15, 1979.
Effective May 15, 1979.

11. Vernon's Ann. Civ. St. art. 4447t. 1 to 3.

APPENDIX 2
Pilot Survey
Organ Donation and Organ Procurement

PILOT SURVEY
ORGAN DONATION AND ORGAN PROCUREMENT
A Study of Opinions of Select Physicians
and Intensive Care Nurses

This questionnaire has been prepared by a graduate student attending the US Army/Baylor Program in Health Care Administration. She is presently engaged in an academic survey research project designed to determine select physician and Intensive Care Nurse attitudes towards kidney donation and procurement in support of the Department of Defense Organ Transplant Program. These data will supplement a graduate research project and will be used to support recommendations for planning future Department of Defense organ donation programs.

THIS IS A PILOT SURVEY. Please feel free to note in the margin any ambiguous statements or recommendations to improve the survey.

CHARACTERISTICS OF RESPONDENTS

AGE: _____

SEX: M F

RELIGION: Catholic
Protestant
Jewish
Other

PROFESSIONAL TRAINING:

MEDICAL

Post Graduate 1 2 3 4 5
Staff

MEDICAL SPECIALTY:

Emergency Medicine

General Medicine

Nephrology

General Surgery

Neurosurgery

Urology

Other (Please Specify)

NURSING

Bachelors
Masters
Doctorate

YEARS IN PROFESSION:

1 - 5

6 - 10

11 - 15

16 - 20

21 - 25

26 - 30

31 +

1. I know who to call if the family of a potential donor requests to donate their loved one's kidneys. (circle one)

- a. strongly agree
- b. agree
- c. disagree
- d. strongly disagree

2. Kidneys harvested from military beneficiaries (active duty, dependents, retirees, etc.) in federal medical treatment facilities for transplantation should: (circle one)

- a. be retained for transplant into military beneficiaries.
- b. be given to civilian facilities for transplantation.
- c. shared equally between the military and civilian community.
- d. no preference

3. My religious beliefs do not affect my willingness to suggest kidney donation to the family of a patient who has expired. (circle one)

- a. strongly agree
- b. agree
- c. disagree
- d. strongly disagree

4. Patients that I attended who have suffered brain death and have otherwise met acceptable program criteria have been considered for kidney donation. (circle one)

- a. strongly agree
- b. agree
- c. disagree
- d. strongly disagree

5. Most patients that I attended were identified for kidney donation by: (circle one)

- a. attending physician
- b. nurse
- c. family member
- d. other: _____

6. Medical and clinical guidelines for deciding if a patient is brain-dead are well established at the facility to which I am assigned.

(circle one)

- a. strongly agree
- b. agree
- c. disagree
- d. strongly disagree

7. I am aware of the acceptable criteria which make a terminally ill patient a possible candidate for kidney donation.

- a. strongly agree
- b. agree
- c. disagree
- d. strongly disagree

8. I am aware that the Department of Defense has an Organ Transplant Program: Air Force Transplant Program - Wilford Hall AFMC; Army Transplant Program - Walter Reed AMC. (circle one)

- a. strongly agree
- b. agree
- c. disagree
- d. strongly disagree

9. The Department of Defense Transplantation Program should be expanded to include extra-renal organs. (circle one)

- a. strongly agree
- b. agree
- c. disagree
- d. strongly disagree

10. I actively seek assistance from the director of the transplant program and/or the organ procurement agency when I identify a patient as a potential kidney donor. (circle one)

- a. strongly agree
- b. agree
- c. disagree
- d. strongly disagree

11. The family was questioned about kidney donation. (circle one)

- a. one to three days prior to death
- b. at the time of death
- c. within 5 hours post death
- d. never

12. The family should be financially compensated for kidneys donated.
(circle one)

- a. strongly agree
- b. agree
- c. disagree
- d. strongly disagree

13. Next-of-kin consent for kidney donation should be obtained by:
(select one)

- a. nurse
- b. attending physician
- c. Director, BAMC Transplantation Program
- e. Organ Bank
- f. social worker
- g. other: _____

14. The following staff should receive more education with regard to kidney donation. (circle one or more)

- a. physicians
- b. nurses
- c. hospital administrators
- d. patients
- e. family
- f. general public

15. I am an organ donor. (circle one)

- a. yes
- b. no

16. The family should be thoroughly informed about the kidney harvesting process. (circle one)

- | | |
|-------------------|----------------------|
| a. strongly agree | c. disagree |
| b. agree | d. strongly disagree |

17. I have received continuing education regarding kidney harvesting sometime during my present duty assignment. (circle one)

- a. strongly agree
- b. agree
- c. disagree
- d. strongly disagree

18. A law should be passed that presumes consent for kidney donation for all brain-dead patients. (circle one)

- a. strongly agree
- b. agree
- c. disagree
- d. strongly disagree

19. Tax credits should be provided to families of brain-dead potential kidney donors. (circle one)

- a. strongly agree
- b. agree
- c. disagree
- d. strongly disagree

20. Television and other communication media should be used routinely to remind the public about the need for kidney donation. (circle one)

- a. strongly agree
- b. agree
- c. disagree
- d. strongly disagree

THANK YOU VERY MUCH FOR YOUR ASSISTANCE IN CONDUCTING THIS STUDY. I
HOPE YOU HAVE ENJOYED THE QUESTIONNAIRE, AND I EAGERLY LOOK FORWARD TO
RECEIVING YOUR ANSWERS.

APPENDIX 3

Organ Donation and Organ Procurement Survey

ORGAN DONATION AND ORGAN PROCUREMENT SURVEY
A Study of Opinions of Army Physicians

This questionnaire has been prepared by a graduate student attending the US Army/Baylor Program in Health Care Administration. She is presently engaged in an academic survey research project designed to determine physician attitudes towards kidney donation and procurement in support of the Department of Defense Organ Transplant Program. These data will supplement a graduate research project and will be used to support recommendations for planning future Department of Defense organ donation programs.

Your participation consists only of completing the attached survey. It is short and will take no more than five minutes of your time to answer. Please complete the questionnaire and return it to HQ, BAMC in the self-addressed envelope provided. Data collection will end 13 May 1985. If you decide to participate please do so before this time. Thank you for your assistance in this research effort.

CHARACTERISTICS OF RESPONDENTS

AGE: _____

SEX: M F

RELIGION: Catholic
Protestant
Jewish
Other

PROFESSIONAL TRAINING:

MEDICAL

Post Graduate 1 2 3 4 5 6 7

Staff

MEDICAL SPECIALTY:

(Please specify)

YEARS IN PROFESSION:

1 - 5

16 - 20

6 - 10

21 - 25

11 - 15

26 - 30

31+

1. I know who to call if the family of a potential donor requests to donate their loved one's kidneys. (circle one)

- a. strongly agree
- b. agree
- c. disagree
- d. strongly disagree

2. Kidneys harvested from military beneficiaries (active duty, dependents, retirees, etc.) in federal medical treatment facilities for transplantation should: (circle one)

- a. be retained for transplant into military beneficiaries.
- b. be given to civilian facilities for transplantation.
- c. shared equally between the military and civilian community.
- d. no preference

3. My religious beliefs do not affect my willingness to suggest kidney donation to the family of a patient who has expired. (circle one)

- a. strongly agree
- b. agree
- c. disagree
- d. strongly disagree

4. Patients that I attended who have suffered brain death and have otherwise met acceptable program criteria have been considered for kidney donation. (circle one)

- a. strongly agree
- b. agree
- c. disagree
- d. strongly disagree

5. Most patients that I attended were identified for kidney donation by: (circle one)

- a. attending physician
- b. nurse
- c. family member
- d. other: _____

6. Medical and clinical guidelines for deciding if a patient is brain-dead are well established at the facility to which I am assigned.
(circle one)

- a. strongly agree
- b. agree
- c. disagree
- d. strongly disagree

7. I am aware of the acceptable criteria which make a terminally ill patient a possible candidate for kidney donation.

- a. strongly agree
- b. agree
- c. disagree
- d. strongly disagree

8. I am aware that the Department of Defense has an Organ Transplant Program: Air Force Transplant Program - Wilford Hall AFMC; Army Transplant Program - Walter Reed AMC. (circle one)

- a. strongly agree
- b. agree
- c. disagree
- d. strongly disagree

9. The Department of Defense Transplantation Program should be expanded to include extra-renal organs. (circle one)

- a. strongly agree
- b. agree
- c. disagree
- d. strongly disagree

10. I actively seek assistance from the director of the transplant program and/or the organ procurement agency when I identify a patient as a potential kidney donor. (circle one)

- a. strongly agree
- b. agree
- c. disagree
- d. strongly disagree

11. The family was questioned about kidney donation. (circle one)

- a. one to three days prior to death
- b. at the time of death
- c. within 5 hours post death
- d. never

12. The family should be financially compensated for kidneys donated.
(circle one)

- a. strongly agree
- b. agree
- c. disagree
- d. strongly disagree

13. Next-of-kin consent for kidney donation should be obtained by:
(select one)

- a. nurse
- b. attending physician
- c. Director, BAMC Transplantation Program
- e. Organ Bank
- f. social worker
- g. other: _____

14. The following staff should receive more education with regard to kidney donation. (circle one or more)

- a. physicians
- b. nurses
- c. hospital administrators
- d. patients
- e. family
- f. general public

15. I am an organ donor. (circle one)

- a. yes
- b. no

16. The family should be thoroughly informed about the kidney harvesting process. (circle one)

- | | |
|-------------------|----------------------|
| a. strongly agree | c. disagree |
| b. agree | d. strongly disagree |

17. I have received continuing education regarding kidney harvesting sometime during my present duty assignment. (circle one)

- a. strongly agree
- b. agree
- c. disagree
- d. strongly disagree

18. A law should be passed that presumes consent for kidney donation for all brain-dead patients. (circle one)

- a. strongly agree
- b. agree
- c. disagree
- d. strongly disagree

19. Tax credits should be provided to families of brain-dead potential kidney donors. (circle one)

- a. strongly agree
- b. agree
- c. disagree
- d. strongly disagree
- e. don't know

20. Television and other communication media should be used routinely to remind the public about the need for kidney donation. (circle one)

- a. strongly agree
- b. agree
- c. disagree
- d. strongly disagree

THANK YOU VERY MUCH FOR YOUR ASSISTANCE IN CONDUCTING THIS STUDY. I HOPE YOU HAVE ENJOYED THE QUESTIONNAIRE, AND I EAGERLY LOOK FORWARD TO RECEIVING YOUR ANSWERS.

APPENDIX 4
Statistical Calculations
Sample Size

STATISTICAL CALCULATIONS

Sample Size

Determination of Sample Size for Estimating Proportions*

Formula:

$$n = \frac{Nz^2pq}{d^2(N-1) + pq}$$

$$n = \frac{2529 (1.96)^2 (.5)(.5)}{(.05)^2 (2329-1) + (1.96^2 (.5)(.5))}$$

$$n = \frac{(2529)(3.8416)(.5)(.5)}{(.0025)(2528) + (3.8415)(.5)(.5)}$$

$$n = \frac{2428.85}{7.28}$$

$$n = 341.4 \text{ or } 350$$

The Finite Correction Factor was not disregarded. There is a finite number of Medical Corps officers assigned to Army medical centers.

High reliability and a narrow interval is obtained by taking a large enough sample size, as determined by this formula.

Index:

N = 2529**

p = .5***

z = confidence interval of 95%, or 1.96

d = desired interval of .05

q = (1 - p) or 1 - .5 = .5

*Source: Wayne W. Daniels, Biostatistics: A Foundation for Analysis in the Health Sciences, 2nd ed. (New York: John Wiley & Sons, 1982), p. 146.

**Source: PCN RAA - M73, "Medical Corps Assignments by MEDCEN/MEDDAC by MOS" (seperately totaled by facility).

***"If it is impossible to come up with a better estimate, one may set p equal to .5" (Daniels, p. 146).

APPENDIX 5

Medical Center Medical Corps Distribution

MEDICAL CENTER MEDICAL CORPS DISTRIBUTION

MOS	BAMC	LAMC	DDEAMC	MAMC	WBMAC	FAMC	TAMC	WRAMC	TOTAL
61A	2			2	1	1	1	3	10
61B	1	1	2	1	1	2	1	4	13
61C	1		1	2	2	3	1	7	17
61D		1		2		2	1	2	8
61E									---
61F	99	55	31	36	34	54	40	102	451
61G	1		2	1		1	1	1	7
61H	4	2	36	27	3	4	16	1	93
61J	39	28	13	16	11	22	25	42	196
61K	2	4	1	1	2	3	2	2	17
61L	1	1	1	2		2	2	2	11
61M	12	7	5	8	4	4	10	8	58
61N	2	4	1	5	2	2	3	3	22
61P	2	3	2	2	2	2	2	6	21
61Q	2	2		2	1		2	4	13
61R	15	9	6	7	4	8	10	15	74
61S	2					1	1	2	6
61T		1					1	1	3
61U	13	9	8	10	9	11	10	21	91
61V									---
61W									---
61Z	3	3	1			2	2	3	14
62A	4	2	2	3	2	2	3	1	19
60A									---
60B	2	3	1	1	2	1	2	4	16
60C		1	1	2	1	1	1	1	8
60D									---
60E	100	58	45	72	43	68	62	138	587
60F	3	1	1		1	2	2	3	13
60G	3		1	3	2	2	1	3	15
60H	3	2	3	3	3	3	3	7	27
60J	17	14	5	15	10	12	27	18	121
60K	6	2	2	4	3	3	6	3	29
60L	7	4	3	4	3	3	2	5	31
60M	1	1	1	1	2	3	1	3	13
60N	24	16	3	5	1	4	4	18	75
60P	36	15	8	31	27	30	24	35	206
60Q			1	1	1		1	2	6
60R		2					1	2	5
60S	6	6	3	4	4	2	4	7	36
60T	6	2	2	5	4	4	6	7	36
60U	1	3		2		1	2	3	12
60V	4	7	1	3	2	7	4	16	44
60W	5	20	19	4	5		15	27	95
60Z	1	1		3	1	1	1	2	10
	431	290	212	293	193	273	303	534	2529

APPENDIX 6
Statistical Calculations
Subgroup Sample Size

STATISTICAL CALCULATIONS

Subgroup Sample Size

	BAMC	LAMC	DDEAMC	MAMC	WBMAC	FAMC	TAMC	WRAMC
61 & 62 MC MOS Series Subtotal	206	132	112	127	78	126	134	230
60 MC MOS Series Subtotal	225	158	100	166	115	147	169	304
	431	290	212	293	193	273	303	534
% MC/MEDCEN*	$\frac{431}{2529}$ 17%	$\frac{290}{2529}$ 11%	$\frac{212}{2529}$ 8%	$\frac{293}{2529}$ 12%	$\frac{193}{2529}$ 8%	$\frac{273}{2529}$ 11%	$\frac{303}{2529}$ 12%	$\frac{534}{2529}$ 21%
MC Subgroup Sample Size per MEDCEN as % of To- tal Sample of 350**	$\frac{350}{x.17}$ 59	$\frac{350}{x.11}$ 39	$\frac{350}{x.08}$ 28	$\frac{350}{x.12}$ 42	$\frac{350}{x.08}$ 28	$\frac{350}{x.11}$ 39	$\frac{350}{x.12}$ 42	$\frac{350}{x.21}$ 73

*2529 = total MC officers assigned to the eight Army MEDCENS

**350 = Sample size (see Appendix 4)

APPENDIX 7
Brain Death Criteria

BRAIN DEATH CRITERIA

1. Unresponsive Coma.

- a. No observable response other than spinal reflexes (tendon stretch reflexes or mass withdrawal response).
- b. No spontaneous movement or posturing.
- c. No hypothermia (body temperature above 96°F).

2. Apnea: The patient must have been ventilated to a FIO_2 to insure a normal PaO_2 and a rate to insure a normal $PaCO_2$ for at least 10 minutes, both values having been documented; then off the respirator (with similar FIO_2 by "blow-by") does not demonstrate any respiration for 3 minutes.

3. Reflexes.

- a. No pupillary responses to light.
- b. No brainstem reflexes.

(1) Absent oculoccephalic ("doll's eyes") or oculovestibular ("ice water irrigation of the external auditory canal"; "cold water calorics").

(2) Absent corneal reflexes.

(3) No pathological posturing (decerebration, decortication, etc.) either spontaneously or to stimulation.

4. Isoelectric Electroencephalogram (Optional and Confirmatory).

a. Must be performed using criteria for interelectrode distance, filter settings, electrode resistance, etc., outlined by American EEG Society.

b. Patient must be normothermic at the time of recording (no hypothermia, body temperature above 95°F).

c. Patient must be over 5 years of age.

5. Absent Cerebral Blood Flow (Optional and Confirmatory). May be determined either by radionuclide brain scan or by cerebral arteriography.

6. Duration of Coma.

a. In cases where the cause of coma is known, the observations confirming brain death should be made and documented no sooner than 6 hours after the onset of coma.

b. In cases where the cause of coma is unknown, the observations confirming brain death should be made no sooner than 12 hours after the onset of coma and repeated again 24 hours after the onset of coma.

c. Any form of drug or alcohol intoxication must be excluded prior to brain death determination.

d. If there is any chance of the coma being due to or complicated by a sedative medication, particularly a barbiturate, then drug screening must be performed and negative results must be documented in the chart.

e. Two patient examinations separated in time by at least 6 hours by two different examiners must be accomplished and results placed in the patient's chart. If organs are to be harvested for transplantation, then the examining physician must be someone other than the physician involved with organ harvesting.

7. The use of EEG, arteriography, and radionuclide brain scan are considered optional except in circumstances where the diagnosis of brain death has severe legal consequences (e.g., suspected homicide, gross negligence resulting in death, etc.).

APPENDIX 8
Kidney Transplant Criteria

KIDNEY TRANSPLANT CRITERIA

1. Age Limit: Up to about 55-63, depending on the donor's condition.
2. Diseases prohibiting retrieval include cancer (except primary brain tumor), chronic hypertension, active infections (bacterial, fungal, viral), i.v., drug abuse, history of renal disease, prolonged ischemia resulting in severe renal dysfunction, and diabetes mellitus.
3. Remove Within Time Limit: Generally does not apply. No warm ischemia time is allowable. Donor must be heartbeating cadaver.
Note: Some centers will retrieve within 10 minutes of body death.
4. Graft within 24-60 hours of removal from donor, depending on the method of preservation.
5. Requires from local hospital, a surgery suite, a major laparotomy set, selected medications, one circulating nurse, and one scrub nurse. The retrieving surgeon is either a local staff member or part of organ bank's transplant team. The transplant coordinator scrubs as assistant. However, it is sometimes the case that the donor is transported to a transplant center for removal of the organ(s).
6. Local hospital is responsible for pronouncing death and for maintaining donor until transplant team arrives. The South Texas Organ Bank can put you in touch with the transplant coordinator, who will advise on donor maintenance and assist throughout the procedure.
7. Tests typically done include:
 - a. Before the hospital calls transplant team: vital signs, urine output record, recent serum creatinine, recent BUN, urinalysis, ABO group, if possible.
 - b. These preliminary lab tests before surgery include two blood cultures, BUN, creatinine, CBC, ABO typing, VDRL, urine culture, and sensitivity. Some of these tests and others may be done by the transplant center. Please supply the patient's chart including current medications.
8. Charges: None to family; little, if any, to hospital. Any costs incurred which relate directly to the transplant are to be billed to the transplant facility. Costs of donor care after brain death has been declared and after patient has been designated as a donor are billed to the transplant facility, as well as certain previous charges related to the transplant.

APPENDIX 9

Composite Group Data by Category

PCN AAF-220

ORGANIZATIONAL EFFECTIVENESS SURVEY SYSTEM

MODIFIED DE SURVEY
 ORGAN DONATION SURVEY PART ONE
 ADMINISTERED BY CPT MILLER

COMPOSITE ATTITUDE

15-23.

	GROUP(1)	GROUP(2)	GROUP(3)	GROUP(4)	GROUP(5)	GROUP(6)
	ALL DATA	25-9	30-4	35-9	40-4	45-9
ITEM	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN
15	3.16	3.15	3.16	3.00	3.21	3.58
16	1.32	1.33	1.28	1.35	1.37	1.33
17	1.85	1.70	1.93	1.75	1.89	2.08
18	3.30	3.36	3.30	3.47	3.11	3.00
19	1.73	1.70	1.68	1.70	1.84	1.92
20	2.05	1.94	2.16	2.05	2.00	2.17
21	3.16	3.12	3.14	3.28	3.00	3.09
22	3.32	3.36	3.53	3.18	3.11	3.00
23	1.66	1.58	1.63	1.74	1.58	1.75
AVG	2.39	2.36	2.42	2.39	2.35	2.43
N	168	33	57	40	19	12

COMPOSITE KNOWLEDGE

24-29.

	GROUP(1)	GROUP(2)	GROUP(3)	GROUP(4)	GROUP(5)	GROUP(6)
	ALL DATA	25-9	30-4	35-9	40-4	45-9
ITEM	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN
24	2.38	2.45	2.42	2.30	2.26	2.25
25	2.19	1.94	2.39	2.42	1.84	1.92
26	2.39	2.45	2.46	2.45	2.00	2.17
27	2.18	2.21	2.25	2.13	2.05	2.08
28	6.97	6.88	7.07	7.00	7.00	6.58
29	3.14	3.18	3.11	3.28	3.00	3.17
AVG	3.21	3.17	3.28	3.26	3.03	3.03
N	168	33	57	40	19	12

COMPOSITE PARTICIPATION

30-34.

	GROUP(1)	GROUP(2)	GROUP(3)	GROUP(4)	GROUP(5)	GROUP(6)
	ALL DATA	25-9	30-4	35-9	40-4	45-9
ITEM	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN
30	2.83	2.70	2.61	3.22	3.00	2.83
31	3.15	3.03	3.09	3.42	3.26	2.92
32	3.66	3.70	3.67	3.72	3.68	3.42
33	3.57	3.39	3.60	3.75	3.37	3.42
34	2.48	2.42	2.58	2.52	2.58	2.08
AVG	3.14	3.05	3.11	3.33	3.18	2.93
N	168	33	57	40	19	12

106 on BACK

1062

ONE

5) GROUP(6) GROUP(7) GROUP(8) GROUP(9) GROUP(0)
 45-9 50-4 55-9 60-4 65P

MEAN	MEAN	MEAN	MEAN	MEAN
3.58	3.00	0.0	3.00	0.0
1.33	2.00	0.0	1.00	0.0
2.08	2.00	0.0	2.00	0.0
3.00	2.00	0.0	4.00	0.0
1.92	2.00	0.0	2.00	0.0
2.17	2.00	0.0	1.00	0.0
3.09	3.00	0.0	3.00	0.0
3.00	3.00	0.0	3.00	0.0
1.75	2.00	0.0	2.00	0.0

2.43	2.33	0.0	2.33	0.0
12	1	0	1	0

5) GROUP(6) GROUP(7) GROUP(8) GROUP(9) GROUP(0)
 45-9 50-4 55-9 60-4 65P

MEAN	MEAN	MEAN	MEAN	MEAN
2.25	2.00	0.0	2.00	0.0
1.92	2.00	0.0	2.00	0.0
2.17	2.00	0.0	2.00	0.0
2.08	3.00	0.0	2.00	0.0
6.58	6.00	0.0	8.00	0.0
3.17	3.00	0.0	2.00	0.0

3.03	3.00	0.0	3.00	0.0
12	1	0	1	0

5) GROUP(6) GROUP(7) GROUP(8) GROUP(9) GROUP(0)
 45-9 50-4 55-9 60-4 65P

MEAN	MEAN	MEAN	MEAN	MEAN
2.83	2.00	0.0	2.00	0.0
2.92	5.00	0.0	1.00	0.0
3.42	3.00	0.0	5.00	0.0
3.42	5.00	0.0	5.00	0.0
2.08	2.00	0.0	2.00	0.0

2.93	3.40	0.0	3.00	0.0
12	1	0	1	0

20/2

ENDNOTES

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⁹Ibid., p. 23.

¹⁰"Army/Navy Cadaver Organ Donor," decision paper, 8 December 1983.

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¹²Ethical and Religious Directives for Catholic Health Facilities, Department of Health Affairs, U.S. Catholic Conference, 1971, p. 15.

¹³Ibid.

¹⁴Ben Lacy Rose, "Who Is Really Saved?" Presbyterian Survey (July/August 1984): 12.

¹⁵Ethical and Religious Directives, p. 15.

¹⁶Billy Graham, Houston Post, 28 June 1984.

- ¹⁷"Army Organ Transplantation Program," p. 51.
- ¹⁸USGAO, p. 3.
- ¹⁹USGAO, p. 3.
- ²⁰Ibid., p. 1.
- ²¹"Set of 'Biases' Seen Determining Who Can Receive Renal Dialysis," U.S. Medicine (15 March 1983): 34.
- ²²USGAO, p. 3.
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- ²⁶Phil Gunby, "Organ Transplant Improvements, Demands Draw Increasing Attention," Journal of the American Medical Association 251 (23/30 March 1984): 1521.
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- ²⁸Ibid.
- ²⁹Ibid., p. 1522.
- ³⁰"Set of 'Biases.'" p. 34.
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- ³²Elliot Carlson, "Is Our Care System Killing Us?" Modern Maturity (April-May 1984): 36.
- ³³USGAO, p. 1.
- ³⁴Ibid.
- ³⁵Ibid., p. 4.
- ³⁶Ibid.
- ³⁷"Feds Finalizing Payment Cuts for Dialysis?" Medical World News (25 April 1983): 27.
- ³⁸Ibid.

³⁹Ibid.

⁴⁰Thomas J. Blommers, Barbara Schanbacher, and Robert J. Corry, "Transplant and Dialysis: The Cost/Benefit Question," Iowa Medicine (January 1984): 15.

⁴¹Ibid., p. 17.

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⁴⁴Ibid.

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⁴⁷Judy E. Fox, "Organ Shortage Seen Increasing," U.S. Medicine (15 June 1984): 3.

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⁵⁹Fox, p. 26.

⁶⁰Donald P. Wilcox and Michael G. Young, "Organ Donation and Transplantation," Texas Medicine 79 (December 1983): 50.

⁶¹Anderson, p. 22.

⁶²Wayne E. Daniels, Biostatistics: A Foundation for Analysis in the Health Sciences, 2nd ed. (New York: John Wiley & Sons), p. 467.

⁶³"Army Organ Transplant Program," p. 51.

⁶⁴Anderson, p. 22.

⁶⁵Marwick, p. 1522.

⁶⁶Wilcox and Young, p. 58.

⁶⁷Ash, p. 2.

⁶⁸Iglehart, p. 128.

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